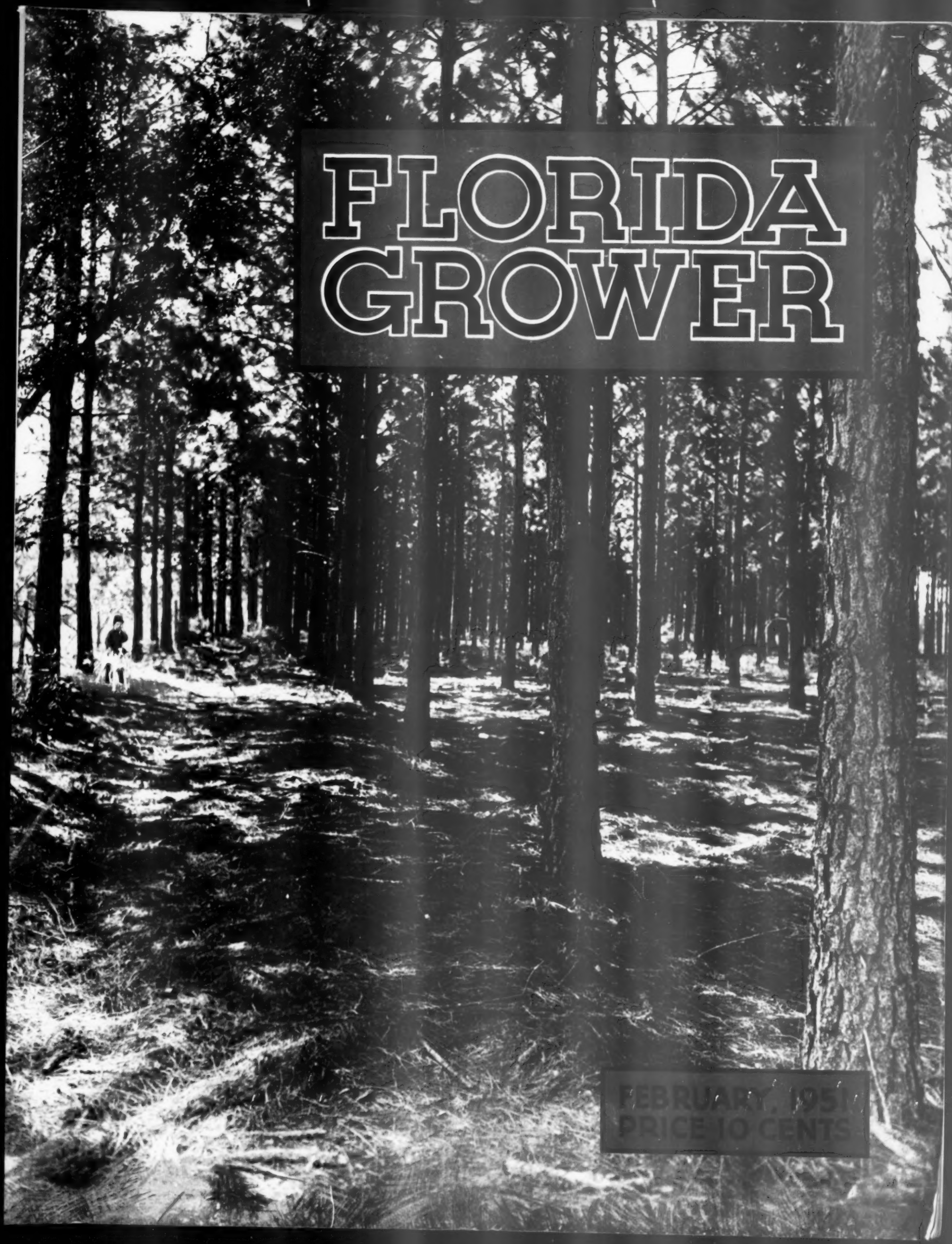
FLORIDA
GROWER
FEBRUARY, 1951
PRICE 10 CENTS

Look at all these EXTRA FEATURES!

Yes, you can believe your own eyes . . . You can take a good look and *see* why Firestone Tires pull better and last longer.

Notice the bars. You'll see they're curved to cup and grip the soil for a firm, sure hold to eliminate slippage.

Examine the openings between the bars. See how they flare out at the shoulders to permit automatic soil release. You'll notice there's no "wedged-in" pinching nor bar-end soil cramping.

Look at the treads of these tires. Observe how wide, how flat they are for full traction contact, long, even tread life.

Only Firestone gives you all these extra features. Only Firestone gives you your choice of top quality in either Open Center or Traction Center design. So, before you buy, LOOK!

. . . . . ALWAYS BUY TRACTOR TIRES BUILT BY FIRESTONE, ORIGINATOR OF THE FIRST PRACTICAL PNEUMATIC TRACTOR TIRE

Listen to the Voice of Firestone on radio or television every Monday evening over NBC

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Stop, Look, Listen We Need More Trees

IT WOULD be a fine thing if all GROWER readers looked carefully at this months's cover. It isn't a dynamic photograph, as a matter of fact, we think it is rather restful—maybe good for our nerves at this time.

DYNAMIC PHOTOGRAPH, NO—DYNAMIC SUBJECT, VERY DEFINITELY YES. Dynamic because it is a picture of trees — the source of lumber, pulpwood, fence posts, and hundreds of other major materials. Important, because there are not enough of 'em on Florida farms.

The point we are trying to get over is that timber is a wonderful farm crop for Florida—for Florida's millions of unused acres (Florida ranks second in the United States in land available for forests).

Now take a look at this little picture of a Florida forest fire below. That's

Which do you like—this one or the cover?

one good reason why Florida farmers "give up" the idea of growing trees.

A farmer's pig crop is his own concern, but FOREST FIRES that destroy tree crops are everybody's concern. We have got to learn how to PREVENT forest fires—there are many ways. One is to construct fire breaks (see page 30), another is to practice controlled burning (see page 12), and still another is to constantly remind everyone to please be careful with fire (see the GROWER's offer on page 30).

Education and effort can whip fire. Other Florida farmers are making steady profits from timber on their farms. They have learned how to combat their deadly enemy. Just like W. G. Hardy, of Overstreet, whose slash pine plantation is photographed on the cover. Mr. Hardy has 465 acres of trees on Gulf county which is typical of hundreds of other tree plantations throughout the state. These trees are bringing him profits—and you can do the same thing.

We urge others to become tree farmers. You will always find a market for your crop. Let your forester or county agent tell you how you can get started.

Photographs on cover and above through the courtesy and cooperation of the Florida Forest Service and Mr. William S. Chambers, Jr., chief, Information and Education.

* * *

PLANT PINE SEEDLINGS

A shipment of 100,000 slash pine seedlings was recently distributed to 25 Gulf county farmers for planting, along with planting procedure instruction sheets, County Agent C. R. Laird said today. The pine seedlings were donated by the St. Joe Paper Company.

Facts about FLORIDA

1. The biggest fish ever caught in Florida was landed at Knight's Key. Do you have any idea how much it weighed?

It was a white shark that weighed 26,594 pounds and was 38 feet long with girth of 18 feet. It was harpooned by Captain Charles Thompson, June 2, 1912.

2. What are the highest and lowest temperatures recorded in Florida?

Florida's highest temperature for 30 years was 107 degrees; its lowest was 0.2 degrees recorded in Tallahassee in 1889.

3. Where is the geographic center of Florida?

It is twelve miles north northwest of Brooksville in Citrus county.

4. In what county is found the famous Gulf Hammock?

In Levy county on the West coast between the Suwannee River and Yankeetown.

5. In the entire United States only two court houses are built on islands. One is in Florida. Name it.

The Monroe county court house at Key West. The other is at Manteo, Dare County (birthplace of Virginia Dare), North Carolina.

* * *

WHEAT AND RYE STAND COLD

Suwannee county farmers report very little damage to their pastures of Coastal wheat and Florida Black rye as a result of the cold snaps, County Agent Floyd L. Eubanks said today.

The agent added that the two crops are looking good, and county farmers are well pleased with the winter pasture covers.

Florida Grower

TAMPA, FLORIDA — FEBRUARY, 1951

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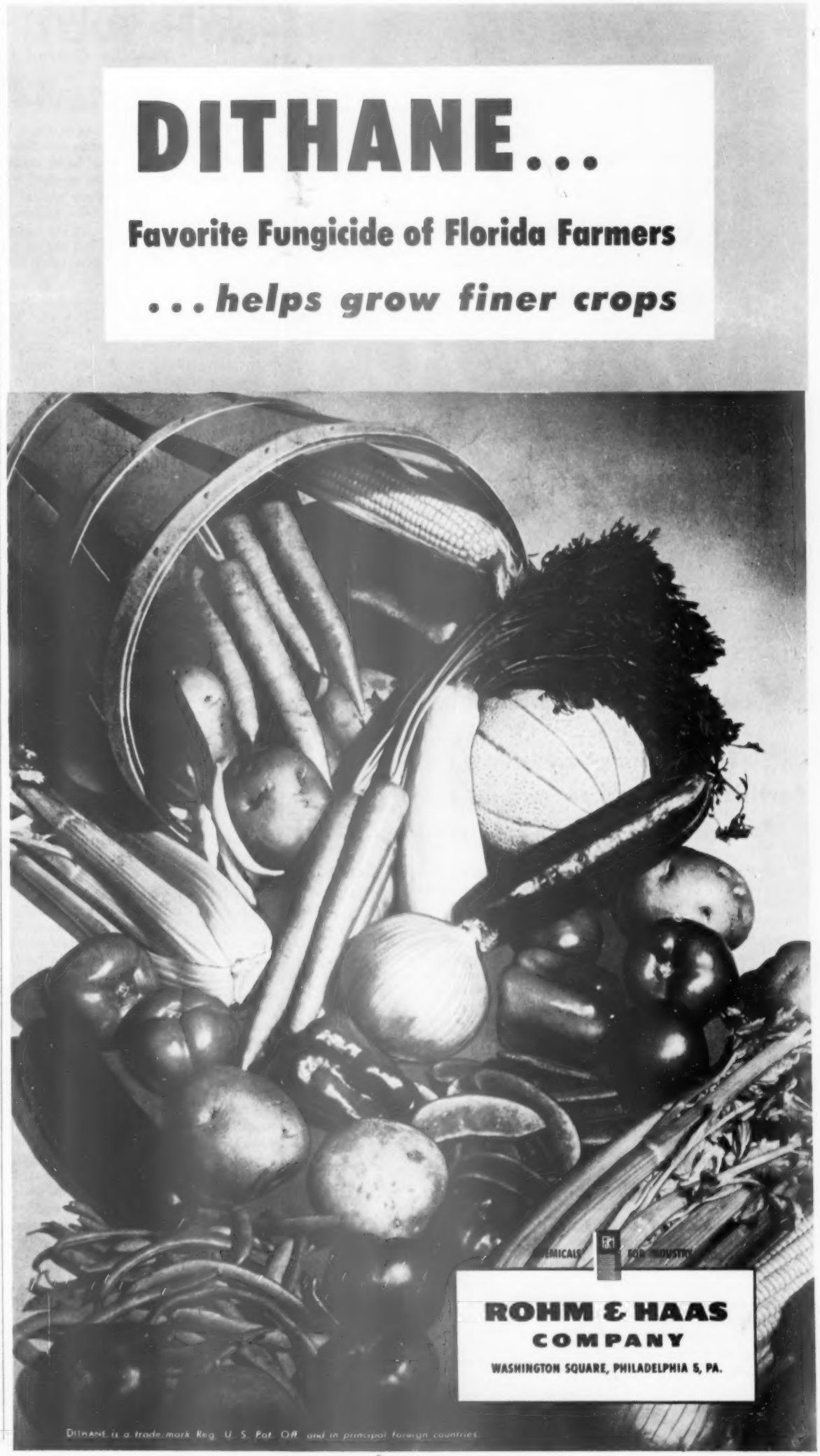
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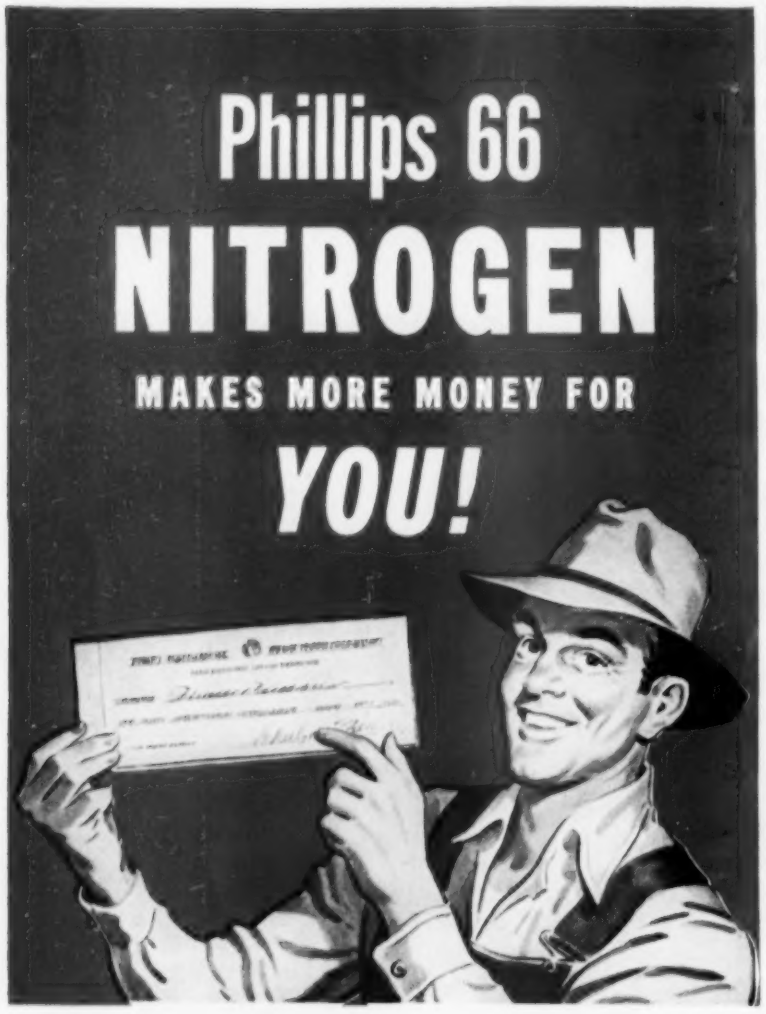

The dollars you invest now to fertilize your pastures and small grains will bring you extra returns

If you want big returns per acre . . . *fast results* . . . be sure to include Phillips 66 High Nitrogen fertilizers in your soil management program.

Use Phillips 66 Ammonium Sulfate (21% Nitrogen) or Phillips 66 Prilled Ammonium Nitrate (33% Nitrogen) as top dressing, and you can expect extra pounds of livestock and dairy products per acre of pasture . . . bigger yields of small grains.

Phillips 66 High Nitrogen fertilizers are uniform, free-flowing . . . easy to drill and spread. Act *now!* Ask your regular supplier for Phillips 66 High Nitrogen Fertilizers.

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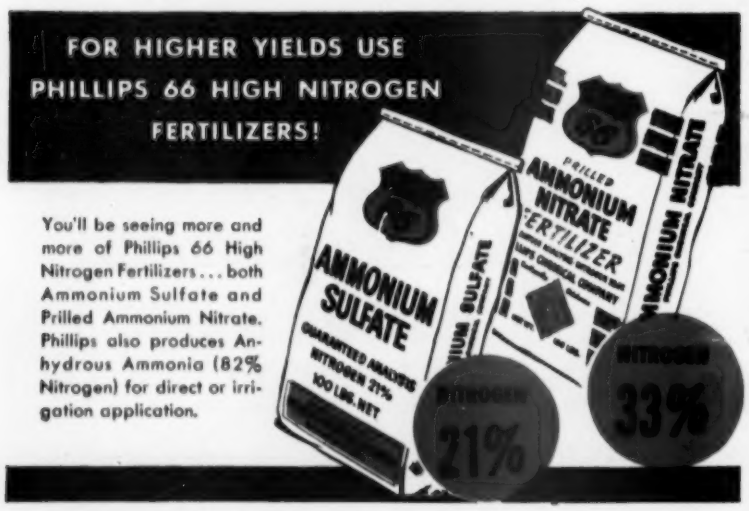
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GUARANTEED ANALYSIS
NITROGEN 21%
100 LBS. NET
PRILLED
AMMONIUM NITRATE FERTILIZER
NITROGEN 21%
NITROGEN 33%

Hints to 1951 Melon Growers

You Can Control Leaf and Fruit Diseases

By G. K. PARRIS
Plant Pathologist in Charge, Watermelon & Grape Investigations Laboratory, Leesburg

WATERMELON growing in Florida is a gamble. So often we hear reports of growers who have made "big money" from melons, or the tremendous price that has been obtained for the first car shipped from an area. Too often we do not hear of the losses sustained by growers. What are some of the reasons for financial losses by watermelon growers?

First and foremost is the weather, and this is largely beyond the control of mankind at present. However, it seems rather unnecessary to plant extremely early in the season, as is the practice by a few growers in every melon producing section of Florida. These men are "shooting" for the early market, with its high prices for melons; so often frost damages the young early plants, possibly killing them. When this occurs replanting is done, and all growers start even. Research has shown that watermelon seeds will not germinate until the soil temperature is above 60° Fahrenheit. So, even if the soil moisture is adequate, the seeds do not grow in cold soil.

Treating for stem-end rot will keep down losses from this trouble during shipment.

Seeds that remain in the soil for any length of time without germinating are likely to be dug up and destroyed by mice, particularly the white-footed mouse, which makes its home in land well suited to melon culture. This station recommends that melon growers eradicate the mice before the melon seeds are planted. Mouse damage necessitates replanting and this results in plants of different ages and therefore melons that ripen at different times. Costs of harvesting are higher in a field of melon vines of uneven ages than in a field where plants are of the same bearing status. Too much time is spent, by labor, in walking such fields to harvest mature watermelons. Early melons bring premium prices; so, with harvesting spread over a long period, economic returns to growers automatically drop. The control of mice in melon fields is described in Florida Experiment Station Circular S-17, which was published in July, 1950. It is not too late to write to Gainesville and procure your copy. Costs of controlling the mice using this zinc phosphide method are much less than when strychnine is used.

So far, we have mentioned two reasons why growers can lose money growing watermelons. It is agreed that we cannot control the frost, but we might delay several days, possibly even a few weeks, and still catch up with the earliest plantings of our neighbors. Mice damage is a second reason, and this certainly can be eliminated. By timely applications of poisoned bait we can rid the fields of mice and their damage.

A third reason is the improper and inadequate control of leaf and fruit diseases that attack the melon crop of Florida. These *can* be controlled. That statement is based on six years research by the writer at the Leesburg laboratory. First step in this control is seed treatment. Every pound of watermelon seed that is planted in Florida should be chemically treated. Spergon, arasan, semesan, or bichloride of mercury (corrosive sublimate) can be used. The first three are dry chemicals that are shaken with the seed in order to cover its surface. The bichloride is made up in a water solution, the seed steeped or dipped therein, then washed well in running water. This wet seed usually must be dried and the extra work attached is not generally liked by growers; therefore, the dry chemicals are easier to use and preferred.

These chemicals kill the spores of the anthracnose and gummy-stem blight fungi that are carried on the melon seeds. Methods of application and details about these seed protectants are given in Experimental Station Bulletin 459, which your author published in May, 1949.

Spraying or dusting with nabam or with zineb will control all melon diseases that plague the grower in Florida. The three diseases of importance are downy mildew, anthracnose, and gummy-stem blight. You will note I did not mention downy-mildew in connection with the seed-treatment. Mildew comes to the melon from other living cucurbit plants, and is not carried on the seed.

Nabam has been known to growers as Dithane D-14 or as Parzate Liquid. This liquid is mixed in the spray tank with zinc sulfate. Zineb has been known as Dithane Z-78 of as Parzate. It is a powder, which is added to the water in the spray tank. Both materials seem to be equally effective in controlling watermelon diseases; from the standpoint of ease of mixing, the zineb is preferred over the nabam. It is recommended that a *sticker* be added to the spray. Zineb can be formulated as a dust, usually at 6 or 6.5 per cent *active ingredient*. Dusts are easier and faster to apply than sprays, but are washed-off by rains. There is no sticker that can be added to dusts to make them adhere despite rains or heavy dews. Therefore, if a dust is used, and it rains soon thereafter, another application of dust is essential for perfect protection. Spray or dust in the afternoon rather than in the morning.

(Continued to Page 18)

CHOP Your Hoe-Labor Costs with McCormick® Farmall® "CULTI-VISION" Accuracy

You can cultivate closer to the row and save costly hoe-labor with the clear-view, offset-seat, "Culti-Vision" design of Farmall Super A (above) and Cub tractors. As each plant comes toward you, you *guide it* carefully between the two gangs right ahead of your feet. You kill more weeds, save plants, boost profits.

There's plenty of crop clearance under both tractor and cultivator: the Cub (above) has 20⅜ inches; the Super A, 21⅞ inches. Parallel-action linkage in the mounting frame keeps all ground tools at the same depth and pitch, whether you're cultivating deep or shallow. These one-row cultivators work 30 to 60-inch rows.

Fertilize while cultivating or planting. Mount the hopper on the Farmall at planting time . . . leave it on right through cultivating. Applies from 25 to 800 pounds per acre. Fertilizer is placed right next to the row, where plants can make the best use of it. Here a Farmall Super A is cultivating and side-dressing young yews.

On or off with two bolts! Just a twist of the wrench attaches each gang, with no heavy lifting. Ground tools are never disturbed. No skilled help is needed—anyone can operate these simple cultivators. Planters, peanut diggers, and many other implements quickly interchange on the same mounting frame. You can switch jobs in just five minutes!

For bed-planted or tall-growing crops you'll want the Farmall Super AV tractor with its extra-high clearance of 27½ inches. Use it with the one-row cultivator (shown), or with disk bedding and cultivating equipment that mounts on a rear-mounted tool bar. There are bedders for Farmalls Cub, Super A, H, and M, too.

You can cultivate in hard ground. Two-way, hydraulic Farmall Touch-Control doesn't drop the cultivator —it lowers it *under power*, then *holds* it in the ground with positive down-pressure.

See your IH dealer. Want to know more about these cultivators? Or about a 2-row, easy-to-operate, 35-acre-a-day cultivator for a Farmall C? Ask your IH dealer for complete information. International Harvester Company, Chicago 1, Illinois.

INTERNATIONAL HARVESTER

International Harvester Builds McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Crawler Tractors and Power Units . . . Refrigerators and Freezers

DIXISTEEL FENCE ON DIXIE FARMS

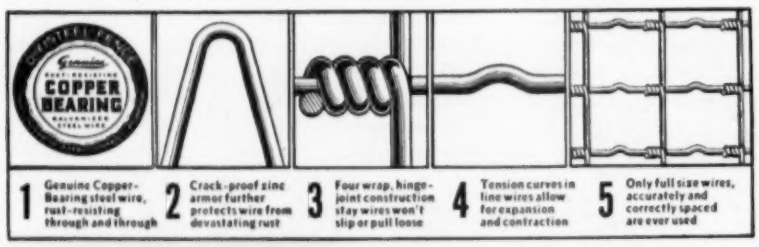
THE HARVEY KELLY FARM, Monticello, Georgia • A life-long farmer and native of Jasper County, Mr. Kelly is a great believer in year-round pasturization for the cattle farmer. Here he gives his helpers a hand with another stretch of DIXISTEEL Fence. Half of his 900-acre farm is already fenced, separating pastures of Crimson Clover, Kentucky 31 Fescue, and Ladino Clover. While steel fence posts are used on much of his fencing, including the lot where he is readying more than 90 Poland China hogs for market, Mr. Kelly has used Locust posts for this new enclosure. A single strand of DIXISTEEL Barbed Wire will be used above the 10-line, 47-inch high DIXISTEEL Cattle Fence.

MORE AND MORE Dixie Farms are using DIXISTEEL Fence. This is the fence that is Southern Made for Southern Needs . . . made to defy rust . . . made to stand the gaff!

You buy fence to last for years. So be sure to get the fence that has all five features. Each one means longer-lasting, better-looking fence that is easier to put up and that stays put!

There is a DIXISTEEL Fence for every farm need. See your nearest fence dealer and ask for DIXISTEEL Fence.

Buy the Fence That Has All 5 Features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1 Genuine Copper-Bearing steel wire, rust-resisting through and through
2 Crack-proof zinc armor further protects wire from devastating rust
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4 Tension curves in line wires allow for expansion and contraction
5 Only full size wires, accurately and correctly spaced are ever used

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ATLANTA, GEORGIA

OUTLOOK

IN THE olden day the question was "Watchman, what of the night"? Today that question is still important but it is submerged, usually, by "What of the year" and "What is the outlook for the year to come?"

Things have been looking pretty bleak for several weeks, in fact months, with the events in Korea where this country has been spending its money and man-power to defend the principles of an international group. At the same time we have been entertaining, in the name of international unity, a group of ruffians who do not appreciate what the modern civilized world is striving to do and who seem to have no end to the blank lies that they insist on telling in place of the truth. It is pretty tough to have to deal with such international rogues, who continue to attack our way of life while they are enjoying its privileges. They may learn, in time.

Of course our chief interest is in the underlying conditions here at home. Militarily, General Eisenhower says the outlook now is not nearly as bad as it was in the spring of 1942. Well, we lived through that period, and, with courage and care will pull out of the present one.

In the business situation we should recall and keep in mind that, in spite of high taxes and increased costs of doing business, there are more people gainfully employed than ever before. There are more wage earners and more consumers of goods than ever before. More money is being spent but savings are high—some 11 billions for 1950 and an estimated accumulated back-log of 175 billion in personal thrift. A leading financial agency says there are 3,925,000 operating businesses and the rate of commercial failures is about half that of the past half century.

So, the general outlook is good. It only remains for each and all of us to maintain sensible confidence and caution, to operate economically and to work industriously at our job. Whatever it may be, it has an important place in the general program.

* * *

SALVAGE

AMERICANS are proverbally wasteful which accounts for the fortunes that have been made by foreigners who have worked here at tasks that many of our good citizens ignore. Riches have been accumulated from what has been thrown out the back door of many of our factories.

But the scene changes. Salvage has grown to be a highly technical job. In many plants highly trained engineers and research men give full time to such savings. One automobile company reports that it is recovering for use about 22 percent of its sheet steel shearings, formerly sold as scrap. The company reports that such savings are sufficient to make an extra car for every fifty turned out. In one case a plan was developed to reclaim chemicals. This enabled a cut of 90 percent in the chromic acid used. Worn-out or broken tools are saved, worked down to smaller sizes and put back into use. Old gloves, cardboard boxes, used emery cloth, scrap lumber and lead are all reclaimed or utilized in the work.

If it pays the big boys to save the small items it will also pay the little fellow. There are small savings that can be made every day in the home, on the farm, in the groves, on the highway. Such saving is just good sense.

* * *

SALESMANSHIP

SOME say salesmanship is 99 percent hard work while others hold that it rests on some sort of charm or mesmerism. Both may be partly right but there is also some psychology involved.

An acquaintance was the recipient of a gift cat. It was a nice cat and the folks grew fond of it. However, not being cat wise, they were surprised when "William" delivered five kittens. What to do? They tried to give them away. No luck. So they went to see a lady who was reported to be a good disposer of kitties. They advertised them "for free". Still no takers.

This lady, psychologist that she was, advised them to advertise them for sale, at one dollar each, saying only that they were fine kittens. All were soon sold and there were calls for more.

The reason: The mention of a price in the advertisement gave a suggestion of value. Thus, the cats were worth much more than if they had been free. That was good salesmanship.

* * *

RATS

RATS are hated by almost everyone; feared by many. They are animals of great intelligence and have a fine way of taking care of themselves under varying circumstances. They are quite ingenious at times. They seem to study out ways and means of getting what they want in spite of much that man can do to fool them.

Various estimates have been made of the damage that rats do. A recent note from the U. S. Department of Agriculture says "Three rats eat as much as two laying hens". Others say that a rat consumes about three dollars' worth of food, or feed, in a year. They also destroy much that they do not eat. They are extravagant rascals.

Controlling rats is an important job. Their damage to buildings and contents run into high figures. The first step in their control is to prevent them getting under buildings, by building tight foundations of concrete. If wooden floors are built above there should always be a couple of "cat holes"

(Continued to Page 23)

Leaders Will Study Tractor Maintenance

ANNUAL 4-H tractor maintenance school for adult 4-H club leaders and older members of 20 North and West Florida counties will be held in Tallahassee Feb. 14-16.

Plans for the school were announced today by J. M. Johnson, engineer, and W. W. Brown, boys' club agent with the Florida Agricultural Extension Service.

Helping sponsor the school is the American Oil Company, which will furnish equipment for demonstrations and also provide its director of youth activities, C. R. Lund of Baltimore, Md., for instruction.

"Purpose of the school," Mr. Brown said, "is to show leaders and older members how to maintain the farm tractor. With proper maintenance, repair bills are reduced and field time for machinery increased."

The leaders and older members will return to their respective counties and in turn teach tractor maintenance to other groups.

* * *

Hillsborough Leads In Mastitis Fight

Hillsborough county has taken the lead in the fight against mastitis. Every dairyman in the county has complied with the new state voluntary mastitis control problem, C. E. Phillips, county associate director of sanitation, has announced. The voluntary Mastitis program of this county is the first of its type in the state.

Phillips credits Dr. A. A. McMurray, director of Mastitis control, for organizing the program here. Briefly, the requirements of the Mastitis control program are as follows: Each quarter of the udder of the cows is tested for the disease and marked if infested. Warm water is provided in each stall for washing cow's udder. Each cow's udder is wiped with a separate chlorine soaked cloth which helps eliminate the spread of mastitis.

* * *

Field Day At Ona To Be February 16

A NATIONAL cattle breeding expert will discuss Southeastern breeding problems at the sixth annual field day to be held at the Range Cattle Station at Ona, February 16.

The field day program was announced today by Dr. W. G. Kirk, vice-director in charge of the range station, which is located near Wauchula.

Dr. R. T. Clark, national coordinator of beef cattle breeding research for the U. S. Department of Agriculture's bureau of animal industry in Denver, Colo., will be the main speaker, Dr. Kirk said.

Other speakers will include Cushman Radebaugh, president of the Florida Cattlemen's Association; Dr. T. J. Cunha, head of the animal husbandry department at the Main Station, Gainesville; Dr. J. Wayne Reitz, provost for agriculture; and Director Willard M. Fifield of the Experiment Stations.

The program begins at 11 A.M. and a barbecue dinner will be served by the Hardee County Cattlemen's Association. Afternoon tours will include projects of Brahman, Shorthorn and crossbred cow, calf and bull breeding; testing of protein feeds; pasture feeding; and maintenance of commercial herds on a combination of native and improved pastures.

Born in Scotland, Dr. Clark obtained degrees from Manitoba and Minnesota universities and for 11 years was connected with the Montana Agricultural Experiment Station. He also served for a year as consultant to the Agricultural Research Council of Great Britain and since 1946 has been with the USDA bureau.

The field day program, Dr. Kirk said, has been arranged for Central Floridians interested in livestock.

* * *

FEEDING SUGARCANE

Lee county cattlemen who planted sugarcane as forage this winter now have a good feed supply, according to County Agent C. P. Heuck. The extension worker reports that pastures in the county have gone completely dormant, making supplementary feed necessary in most cases. Additional acreages of soft sugarcane will be planted for supplemental winter feed.

* * *

The largest Laurel Oak of record is to be found at Highlands Hammock state park near Sebring.

* * *

Protected woods grow 6 times more per acre yearly.

Switch to KRYOCIDE®

SAFE

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...and you can get it now!

For many years, growers have used *Kryocide* Natural Cryolite insecticide in the control of many chewing insects. And today more than ever, they will look to *Kryocide* as a dependable protector of their crops—since it won't sterilize soil, harm crops for which it is intended, or upset natural insect balance.

✓ **READILY AVAILABLE**—*Kryocide* is a *natural* product, not presently dependent upon "critical" raw materials.

✓ **SAFE**—Won't harm soil, foliage or fruit for which it is specified . . . safer to handle.

✓ **COMPATIBLE** with most other insecticides and fungicides.

✓ **MICRON-SIZED** for maximum deposit with uniform coverage.

✓ **USE-TESTED** . . . proved to be economical and effective.

You can depend on Pennsalt insecticides, because they're backed by over a 100 years of experience in chemical manufacturing. Write, wire or call Agricultural Chemicals Department, Pennsylvania Salt Manufacturing Company, Philadelphia 7, Pa.; Montgomery, Alabama.

Progressive Chemistry for over a Century

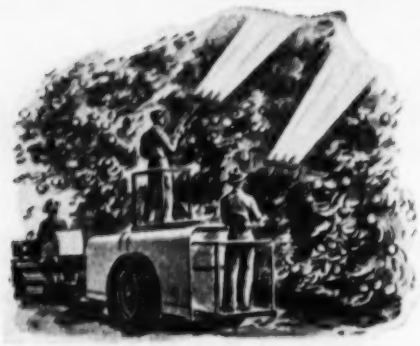
KRYOCIDE controls many crop pests, including:

Cabbage Worms & Loopers	Mexican Bean Beetle	Cucumber Beetles (Diabrotica)
Grape Leaffolder	Sugar Cane Borer	Velvet Bean Caterpillar
Orange Tortrix	Walnut Husk Fly	Tobacco Hornworm
Tomato Worms	Melon Worms	Sugar Beet Webworm
	Cranberry Fruitworm	

PENN SALT
agricultural chemicals

DuPont NuGREEN®
FERTILIZER COMPOUND

Shows many advantages for feeding nitrogen to Florida citrus trees



Feeds nitrogen through the leaves or through the roots. "NuGreen" is a versatile new fertilizer material, containing 44% nitrogen, all in the form of urea. Spread "NuGreen" on the ground, dissolve it in irrigation water or—*spray it on the leaves.*

Foliage sprays of "NuGreen" are attractive because the nitrogen is quickly absorbed by the citrus leaves—it goes to work at once. And, there's a saving in time and labor because "NuGreen" is added to the nutritional and pest-control sprays now commonly used in citrus groves.

Foliage sprays of "NuGreen" are attractive. "NuGreen" spray nitrogen is quickly absorbed by citrus leaves and works promptly—even in dry or cold weather. Now, you don't have to wait for rains to aid uptake of nitrogen by the roots. This enables growers to regulate the supply of nitrogen to citrus trees for the maximum favorable effects on early growth and bloom, fruit set, fruit development and fruit maturity. And since "NuGreen" is compatible with usual spray chemicals, the grower can accomplish two jobs with each spray: the feeding of nitrogen and minor elements to trees, and pest control.

When to apply "NuGreen." Research trials in Florida with "NuGreen" sprays on citrus have given favorable results. This work is being expanded, but in the meantime many Florida citrus growers will want to try "NuGreen" sprays on a portion of their grove.

"NuGreen" sprays of 10 to 15 pounds per 100 gallons appear most useful at three times of the year. "NuGreen" can be combined with regular sprays:

1. Winter Sprays: Dormant winter sprays with "NuGreen" help produce vigorous bloom and good fruit set in spite of the usual dry soil that hampers response from nitrogen spread on the ground.

2. Post-bloom Sprays: "NuGreen" added to melanose spray after fruit set helps to speed fruit growth and helps decrease fruit drop.

3. Summer Sprays: Trees usually need extra nitrogen after early summer rains have removed available nitrogen from the soil. "NuGreen" in the summer oil or sulfur sprays quickly supplies this need.

Versatility of "NuGreen." Every way you use "NuGreen" it has special advantages. It is excellent for soil applications as well as for foliage sprays. It is quickly available, resists leaching and leaves no harmful residue in the soil. Any drip from foliage sprays is absorbed by the roots.

Your dealer may not be able to supply you with "NuGreen." Rapidly expanding acceptance of "NuGreen" Fertilizer Compound has resulted in a greater demand than can be supplied under existing circumstances. Your fertilizer dealer will provide you additional information through available literature.

DU PONT, POLYCHEMICALS DEPT.
WILMINGTON, DELAWARE

DU PONT NuGREEN® FERTILIZER COMPOUND

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Mutual's Membership Still Growing

MEMBERSHIP in Florida Citrus Mutual now includes 6915 grower members, 251 shipper and packer members, 45 canners, and 175 cash buyers.

This group grows an estimated 85 per cent of the total citrus volume production in the state and handles an estimated 95 per cent. Mutual processors are allowed to buy from non-members.

Last year at this same time Mutual had 6600 grower members.

* * *

Free Florida Juice To Congressmen?

REP. LANTAFF (D. Fla.) says Florida is missing a good advertising bet if it doesn't serve free juice to congressmen in Washington.

Congressman Lantaff wrote Gov. Fuller Warren and suggested that he take up the idea with the Florida Citrus Commission.

Rep. Herlong (D. Fla.) has served orange juice to visitors to his office for the last couple of years. He set up a bar for the purpose but members of his staff admit that their arms get mighty sore from squeezing oranges.

Lantaff wants to use frozen orange concentrate.

EDITOR'S NOTE: *We think serving orange juice to the nation's law makers is an excellent idea. We might add that Congressmen Lantaff and Herlong might serve some folks up there Florida fish—sometimes known as "brain food."*

* * *

F. W. Parvin Named Assistant Director

FAYETTE W. PARVIN, associate economist, has been named assistant to Director H. G. Clayton of the University of Florida Agricultural Extension Service. He succeeds Marshall O. Watkins, who is on leave doing advanced study.

Director Clayton also announced that A. E. Nesmith, county agent in Hamilton County, has been granted leave of absence to re-enter Navy service.

* * *

POULTRY MANURE

The value of poultry manure can be greatly increased by mixing two pounds of superphosphate and one pound of muriate of potash with every hundred pounds of the material. One ton of poultry manure supplemented in this way is the equivalent of about 500 pounds of 4-8-4 fertilizer. If the manure contains a large proportion of sawdust, shavings, or other such material, it is advisable to mix 10 pounds of 4-8-8 or 3-8-8 fertilizer with every hundred pounds instead of using the superphosphate and potash.

* * *

European farmers are now using 40 to 50 per cent more fertilizer than they did before World War II.

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YOU SAVE TIME... DO BETTER WORK... WITH CASE EQUIPMENT

Tops for tall truck crops and for work over beds is the Case "VAH" tractor. It's the only high-clearance tractor with Eagle Hitch—the new and different 3-point hook-up that pulls plows and other implements at even depth in uneven ground. It hooks up to Latch-On implements in a minute or so. Here is the "VAH" with front-mounted cultivator on Masterframe. Rear shovels on Eagle Hitch plow out wheel tracks.

Favorite team for citrus is the Case "DO" tractor and "OBL" offset disk harrow. With its depth bands and light weight this harrow maintains shallow tillage. Its surprising strength and sand-resistant bearings give it long life. The "DO" grove tractor equipped as shown has flotation for sandy soils . . . eager, flexible power with Florida fuels . . . long life and low upkeep, thanks to dust-tight brakes, clutch, steering gear, etc., as well as superb sealing of engine and transmission.

Building pastures from wild, rugged land is a job for the Case Brushland harrow and the mighty Model "LA" tractor. The big, notched blades, weighted as needed for positive penetration, cut through palmettoes, brush, roots—roll over buried rocks and stumps. The Case "JA" heavy-duty harrow is a dandy team mate for finishing the seed bed. The 4-5 plow "LA" tractor now is optionally equipped at factory for LPG fuels or for other low-cost fuels.

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Thompson Tractor & Equip. Co., Tampa
Farm Mach. & Sales Co., Pompano
Fla. Tractor & Supply Co., Hollywood
J. W. Gibson, Madison
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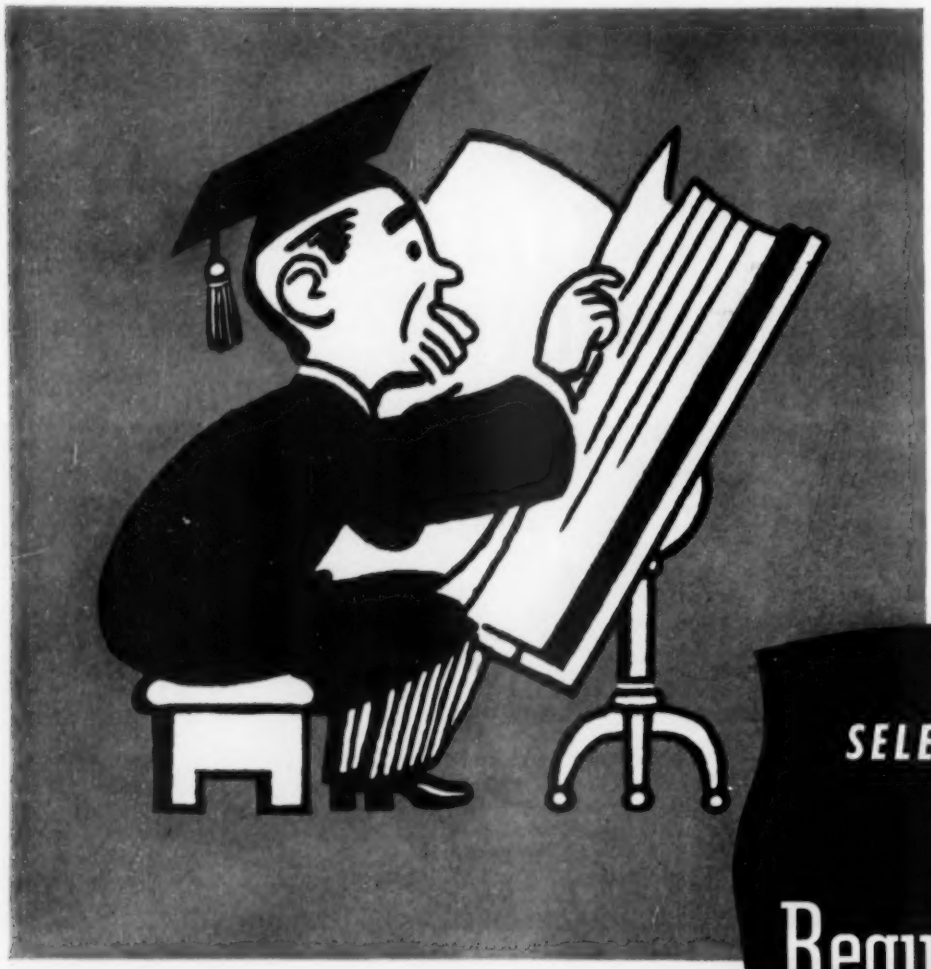

SELECTING A FERTILIZER FORMULA ALSO

Requires Experience!

Growing quality citrus crops requires a lot of experience that can't come out of books. Take selecting a fertilizer formula, for instance. Getting the best fruit and better profits from a Florida soil takes a fertilizer formula made especially for your particular soil, your groves. This requires experience and study.

That's why it will pay you to get in touch with your Wilson & Toomer representative. He lives in your community—knows local problems. The Wilson & Toomer people have been working with Florida soils and citrus groves for more than half a century. Knowing what is best for your soil is their business. For example, ask your Wilson & Toomer representative now about the proper use of top dressers.

From among the many formulas Wilson & Toomer have developed for Florida conditions, your Wilson & Toomer representative will be glad to help you select the Wilson & Toomer formula for best results from your groves. And while you're talking with him, ask him about Fasco pesticides, too!

IDEAL

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Division of Wilson & Toomer: *Peninsular Fertilizer Works—Tampa, Florida*

Citrus Blackfly in Mexico Worries Florida

The Blackfly Slipped Into Key West in 1934, And Entry Has Been Intercepted Often Since

By J. FRANCIS COOPER
University of Florida Agricultural Experiment Stations

FLORIDA CITRUS GROWERS and those who work with them are worried about the possibility of the citrus blackfly getting into this country, giving them one more pest to fight in their never-ending battle to produce high yields of good quality fruit. Thus they are vitally interested in the blackfly infestation in Mexico.

The State Plant Board maintains rigid quarantines in an effort to keep the pest from our shores,

A trap, somewhat like sticky fly paper, used to check blackfly distribution is placed by J. F. Cooper, entomologist with USDA in Mexico City. The bright yellow color of the fly paper entices and snares many an unwary blackfly.

and has intercepted the blackfly on numerous occasions. But a 100 per cent effective quarantine is almost too much to expect over a period of years. The blackfly slipped into Key West in 1934. The Plant Board went into immediate action and eradicated the fly in three years.

Unlike the Mediterranean fruit fly, which state and federal forces wiped out of Florida after its discovery here in 1929, the blackfly does not attack fruit. A small, bluish insect similar to the whitefly which is common on citrus, chinaberry, privet and other plants, it sucks the juices from the leaves, stunts the trees and reduces fruit production.

The blackfly is present in most of the citrus-growing areas of Mexico. The Mexican government and people, in cooperation with the U. S. Department of Agriculture, are striving to control it there and prevent it from slipping into the United States. The nearest known infestation now is about 125 miles from the border.

At the invitation of the Bureau of Entomology and Plant Quarantine, I spent three days in Mexico checking on this pest and the work being done against it.

I saw enough there to bring home the realization that it is a bad actor. While the fly alone seldom kills trees, it can reduce production to the extent that citrus growing is not profitable. In combination with drouth and other unfavorable conditions, it has caused Mexican growers to take out thousands of trees and turn to cotton or other crop.

The blackfly has been around for a long time. When first described in 1911 it was known to be in India, Ceylon, and the Philippine Islands. In 1916 it was reported from Malaya. In the Western Hemisphere, the first infestation was discovered in Jamaica in 1913. In 1916 it was found in Cuba and Nassau, 1917 Panama, 1918 Costa Rico, and 1935 Mexico.

The late Dr. J. H. Montgomery, long-time quarantine inspector with the Florida State Plant Board, and Dr. A. C. Baker of the USDA Bureau of Entomology and Plant Quarantine went to Cuba in 1928 to help import parasites to that island from Malaya, in an effort to lessen the danger to Florida.

Dr. Baker was in Florida during the Mediterranean fruit fiy eradication program. He and another Florida man, J. F. Cooper (a fine fellow, but not related to me), along with several members of the field force, were kind enough to show the blackfly work to Louis Franke of Texas, J. M. Eleazer of South Carolina and me on our recent visit to the neighboring republic.

Dr. Baker heads the USDA's Division of Fruit Fly Investigations, which was established in 1936. He has been at the Mexico City laboratory since 1931 and is an outstanding authority on the blackfly, as well as other citrus insects. Mr. Cooper has been with the USDA for over 20 years, and first studied blackfly at Key West in 1932.

They showed us groves where the blackfly was present in abundance and the trees appeared poorly

Those black splotches on the under sides of the leaves of this young shoot show a very heavy blackfly infestation. Shown here are mostly eggs and larvae. The mature fly is bluish.

productive; they showed us other groves where trees were being cut down and removed; and they showed us other areas where trees had been destroyed and the land planted to cotton. We visited one grower near Valles who had removed 3,500 trees—about 50 acres.

Incidentally, there are 155 hosts of the blackfly—some cultivated, many wild. Complete development of the insect from egg to adult has been observed on 75 plants in 38 families. Citrus, of course, is the preferred host. Other plants frequently found heavily infested — most of them familiar in Florida or nearby states—are mango, cherimoya, persimmon, pear, quince, coffee and myrtle. Other infested in varying degree include jobo, plum, monstera, gumbo-limbo, canna, avocado, crape myrtle, haw, hibiscus, chinaberry, banana, Cattley guava, Mamey and yellow sapotes and grapes.

Fighting enemies on foreign soil often is an excellent way to keep them from reaching and devastating the home area. And if the enemy does reach home shores, our forces will know better how to cope with it if they have met it on a foreign field.

It was fortunate for citrus growers in both Mexico and the United States that the laboratory and its fine staff were in Mexico when the dreaded blackfly spread through most of the citrus-growing areas of that country, from the Gulf of Mexico to the Pacific ocean. Unchecked, the pest would almost certainly infest the valuable groves of Texas, Arizona and California, and possibly Florida, before many more years.

With the blackfly to combat, citrus production decreases, costs rise, and the healthful fresh fruits,

(Continued on Page 36)

The blackfly is present in most Mexican groves. It can reduce production to the extent that citrus growing is not profitable. Above, USDA crews spray an infested grove. Effective spraying costs the Mexican grower $28 per acre for each application.

Controlled Burning-Yes and No

Damage Usually Outweighs Bentfits of Burning Off Land, But If You Must Burn Here Is a Way to Do the Job Right

By L. B. WOOD

BURNING WOODS in Florida is a hot problem in more ways than one. The clouds of smog in west Florida before Christmas, and the fires which are seen everywhere from the highways are often "wild" burning in which much good timber goes up in smoke. Controlled burning, however, is another matter entirely. In our sub-tropical climate where brush grows rapidly, open woods may be protected from wild fires if controlled burning is practiced while the sap is down in the trees. This dormant time runs through December, January, and February, extending into March if there is a late spring.

The perfect solution is, of course, no burning at all. But we must deal with realities and controlled burning seems the solution in certain situations.

First, let us take an example of wild burning. One farmer in Leon county, when questioned last week, stoutly defended his yearly wild burning of his woods. He said it did not hurt his trees "much". He explained that burning during fall, winter or spring, kept the ticks down, killed the snakes, burned off the dead wire grass, and allowed new grass to sprout for his cattle to graze.

He did not add, for perhaps he did not fully realize, that the wild fire he uses so freely on his own possessions every year, also burns up all new trees, dries up ponds and streams, lowers the water table, burns up the layer of humus on his soil, damages older trees and stunts their growth, burns up weed seeds on which wild game feeds, and destroys the cover where they live. And he did not stop to think that the green grass which grows from his earth, parched and depleted of all plant food by this yearly burn-off, is progressively less and less nutritious to his range cattle.

This is controlled burning in Florida flat woods. Note how wind blows fire away from unburned land. Wind also carries off much heat, holding injury to trees at a minimum. With an average wind the fire will creep about 60 feet an hour and can be controlled comparatively easy.

There are several answers other farmers are making to this line of reasoning. One answer is found in the improved pastures dotted with blue ribbon cattle which stretch green and beautiful behind their fences beside the roads of Florida. The runty cattle in burned woods are fewer every year in our state.

Another answer is the planted forests and the planting of young pines by the millions in timberland where no cattle graze.

But there are cattlemen and farmers in our state who have woods in which they graze good herds of animals. It is here that controlled burning, when carefully planned and carried out, is a real help.

But, like a powerful drug in the hands of those who do not know how to use it properly, fire may kill instead of cure. It is dangerous in inexperienced hands.

The method of controlled burning explained by State Forester Hux Coulter is worked out for land owners who have cattle grazing among their timber or turpentine trees. The best plan, Mr. Coulter feels, is a separate arrangement with the cattle on improved pasture instead of in the woods, for it takes about twenty acres of woods to furnish grazing for one animal.

But when a mon combines timber growing and cattle raising, controlled fire seems to be the answer. Use of a bulldozer or tractor for clearing in open woods is not practical because most of the young trees would be killed. Controlled fire does not destroy young trees after they are six to eight feet tall. It does get the smaller ones usually.

Let us take an example. The price of gum has gone up considerably lately. Suppose the farmer who has the timber land decides to cup several thousand of his pines for the first time. Before doing so he wants to clear the heavy rough from his woods. This will forestall the chance of a wild fire after his trees are cupped. Wild fires may start from carelessness, but O. R. Douglass, chief of fire control, Florida Forest Service, estimates that 70 per cent of them are deliberately set.

To carry out his controlled burning, the farmer begins by plowing a fire line around the area he wants to clear. He also plows fire lines at regular intervals inside the area to help in checking the fire at any time. The local forester or the State Forestry Service will gladly help with the planning.

It is important for him to know the State forest fire laws well. These can be found in the Florida Statutes, 1945, in the county judge's office, or a leaflet containing them may be obtained by writing the Forestry Service in Tallahassee. In these laws it states that anyone planning to burn woods must notify his neighbors. And if the fire escapes its confines and burns a neighbor's fences and fields, the person setting the fire is liable for the damage.

After the fire lines are plowed, the farmer begins his controlled burning along the inner edge of the border fire line, firing against the wind, never with it. A dependable wind of five to ten miles per hour, holding a steady direction is good. The fire is strung along the border and it creeps forward at about the rate of a chain an hour (66 feet).

This fire burns low to the ground with almost no heat before it because the wind carries the heat away behind it. A crew stands by throughout the burning to see that it does not get out of hand. Night burning is all right for small areas but because of the dews big areas can be burned better in daytime. The best time to set a controlled fire is during a cold snap, about a day after a rain.

Controlled burning gets rid of the heavy rough on the ground and prepares a natural seed bed where the pine mast can take root. The heavier the stand of pines becomes, the denser the shade, and so the less underbrush to combat. Contrary to popular opinion, fire has very little effect on snakes. Tests have shown that few of them are killed. They go underground in the "gopher" (land turtle) holes and stump holes and wait for the fire to roll over.

Another thing controlled burning does in clearing away the dead grass is to rid the young long leaf pines of a needle disease called brown spot. The low, cool fire burns off the diseased needles and leaves the little pines free of brown spot for several years.

After this first burning, the owner should wait two, three, four, or five years before another burning, depending upon the circumstances. This is vastly better than any annual wild burnover, but even a controlled fire burns humus and weed seed and does some damage. It is not a perfect answer by any manner of means.

Comparing the growth rate of trees on land burned annually with the growth rate of trees on protected unburned land reveals some interesting facts. A five-foot tree on burned land will be nine feet high five years later and 15 feet high at the end of 10 years. On Unburned land, a five-foot tree will be 17½ feet high after five years, and 31 feet high when it is 10 years old.

Many Florida farmers seem to forget that to get a lasting income from their timber it is necessary to protect their very young trees from fire. The farmer above has cut his mature trees but has left a seed tree (left) to reproduce new growth. His job then is to keep the young seedlings from being wiped out by fire before they are large enough to sustain a fire.

Since Florida's return from wood products reached the thumping total of $202,000,000 by 1948, wild burning of woods is simply burning up good money that would come in mighty handy for the children in the family when they and the little trees grow up.

If burn we must, let it be done under a carefully controlled plan to protect the green wealth of our state for the future.

FLORIDA NEWS OF THE MONTH

TANGERINE CO-OP

A TANGERINE marketing cooperative was formed last month and rushed to the aid of Florida's "ailing" tangerine industry. The members are agreed, almost to a man, that the place to push their tangerines is west of the Mississippi River. An incentive program was set up to offer jobbers and wholesalers up to five cents per box for fruit they ship west of the big river. A. V. Saurman, Florida Citrus Mutual's general manager, pledged his organization's full support to the new venture. Officers of the new cooperative are W. W. McBride, of Seville, president; John T. Lesley, of Haines City, vice president; John Airko, of Orlando, treasurer; and Marion Young, Mutual's private sales division manager, secretary and temporary general manager.

Read the GROWER'S offer to help you protect your timber against
FOREST FIRES
On Page 30

POULTRYMEN COMPLAIN

Poultrymen from Pasco county—the second ranking poultry county in the state—are complaining that out-of-state competition is about to plow them under. They point at such things as the high cost of grain and cheaper fryers being shipped in from Georgia. Waldo Richardson, a Pasco buyer, estimated that production is down 15 to 20 per cent below last year and that flocks are producing only half of their full capacity due to cold weather.

ORANGE SHORTAGE?

It seems impossible Florida could run out of oranges during the height of the season, but Frank Seymour, secretary-manager of the Growers Administrative Committee, predicts the possibility. "Florida may run out of early and midseason oranges before the Valencia crop starts to roll," Seymour pointed out. The statement was made on the basis of Florida's present rate of use of its 34 million box early and midseason oranges. Valencias are not expected to be shipped in any volume before early March.

PASCO LOAN

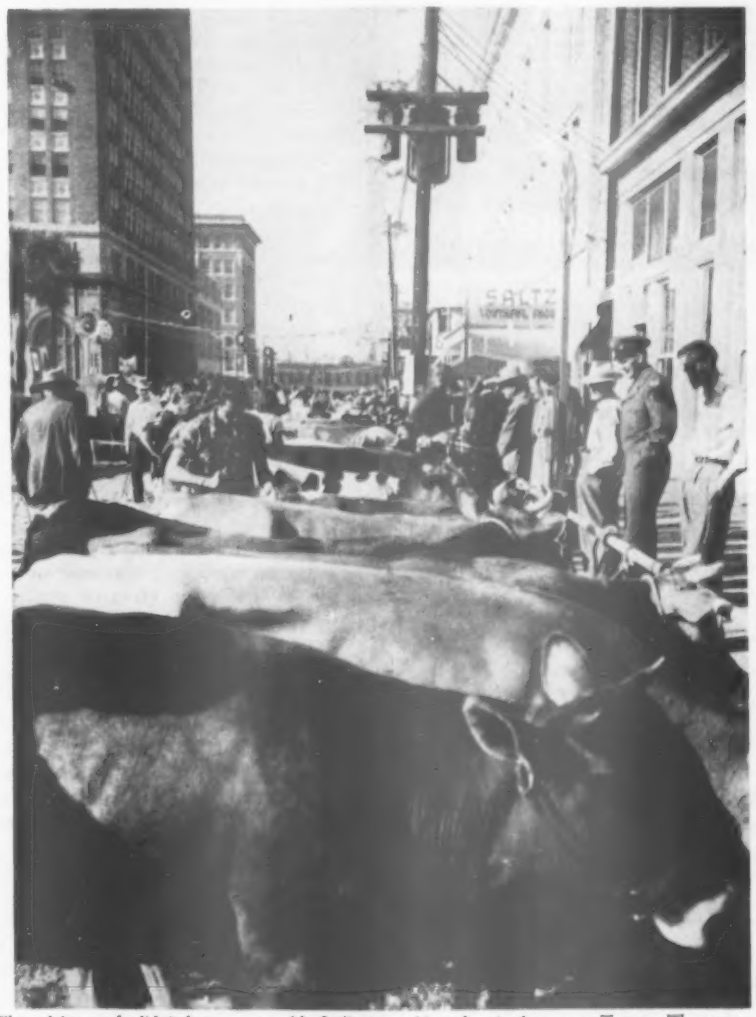
The Pasco Packing Co. at Dade City recently obtained a loan of $3,000,000 from the Equitable Life Insurance Society. The money will be used to finance expansion of the huge Pasco plant. Equitable recently financed a $6 million bond issue for Snow Crop which bought up several citrus processing properties in Florida last year.

VEGETABLES SUFFER

Florida truck crops have suffered heavily due to prolonged cold weather which swooped down on the state time and again. The cabbage crop in central Florida and the Everglades sections has been delayed and crops have been severely damaged in the Hastings and McIntosh sections of North Florida. Acreage around Sanford and Winter Garden was showing a fair degree of recovery. The celery crop has been hampered by the weather but most crops are in good condition and busy harvesting is expected this month. Small acreages of cucumbers in the Fort Myers-Immokalee and Pompano sections which survived the late November and December cold spells will be the chief supply of 'cukes.

CATTLE SHOW

The seventh annual Gadsden county fat cattle show will be held at Quincy Feb. 6-8. The show and sale, which is sponsored by the Northwestern Florida Livestock Asociation, will offer over $1000 in prizes to exhibitors.



These dairy cattle didn't have any trouble finding a parking place in downtown Tampa. They got the key to the city and the streets, too, for the fourth annual Florida West Coast Dairy Show. The show, strictly for 4-H and FFA youths, is fast becoming one of the state's finest exhibitions.

ORIENTAL FLY

Florida citrus growers and truck farmers are being warned of the Oriental fruit fly which has left only rotting ruins of the once fruitful groves and vegetable farms of Hawaii. While no immediate danger exists, Fred P. Lawrence, extension citriculturist of the University of Florida, is "educating" Florida growers in what the fly looks like and how it operates. He is showing movies and distributing pamphlets about the fly to all interested. The Oriental fly is similar to the Mediterranean fruit fly which ravaged Florida groves some 20 years ago. It lays eggs inside the fruit which causes rot.

DAIRY SHOW

The "King and Queen" of the Florida West Coast Dairy Show at Tampa were two Jerseys, one a 16-month-old heifer calf owned by Roy Roberts, 4-H member from Orange County, and the other a young bull owned by Joel Walden, FFA member from Plant City. Several thousand adults, including many Winter visitors, crowded around the outdoor arena north of the Hillsborough County courthouse to watch the youngsters proudly exhibit their dairy cattle. C. W. Reaves, state extension dairyman, and John M. Scott, head state milk inspector, highly praised the progress made by West Coast counties in upgrading their herds—particularly the small herds of many boys and girls of 4-H Clubs and FFA chapters—in recent years.

CORN PLANTING

Everglades farmers have planted their sweet corn crop and estimates indicate total plantings of 12,000 acres. Plantings of spring green beans have started. The usually heavy harvest of winter beans was cut to a trickle by cold damage. Currently being harvested are celery, escarole, chicory, turnip greens, cabbage, Chinese cabbage, romaine, lettuce, radishes, potatoes, and peppers.

LIVESTOCK PEST

Low temperatures this winter have decreased the population of the screwworm fly—the common enemy of all Florida livestock, according to Dr. O. F. Goen, animal industrialist with the Florida Agricultural Extension Service. Consequently, next Summer's herds probably will have less infestation, Dr. Goen pointed out.

"GROWING PAINS"

A net loss of $8343 for the fiscal year ended Oct. 31, 1950 was reported by the gigantic Minute Maid Corporation. This was in contrast to a net profit of $996,063 or $1.32 a share reported the previous year. However, the corporation's sales for the latest year were $24,860,887—more than double the previous year's 11,862, 989. The company attributed the earnings drop to "growing pains" of the new concentrate industry, and pointed in particular to increased fruit costs, new product introductions and competitive price wars.

AUCTION SHOW

A full scale citrus auction, reproducing the real atmosphere and procedures of a terminal sales point, will be one of the features of "Fresh Fruit Day" during the Florida Citrus Exposition at Winter Haven, Feb. 12-17.

GRAPEFRUIT DEMAND

While the orange market was reported "sick" and the tangerine deal "very weak" during the middle of last month, grapefruit took a surprising upswing which experts said was caused by the December freeze in Texas which was reported to have done considerable damage to Rio Grande valley grapefruit.

UNDER GLASS?

Emil Peterson, a Danish fruit grower who had a good time touring Florida recently looking at the state's fruits, told Floridians pineapples and bananas are successfully grown under glass in Denmark. He said he thought he would try growing citrus under glass when h returned to Denmark.

CONCENTRATE MARKET

The stockpiles of citrus frozen concentrate over the nation is without danger providing the price is right according to a report of Industrial Survey Inc. to the Florida Citrus Commission. During October, Concentrate sales hit an all-time peak of 1,870,000 gallons, which indicated that about one-fifth of the nation's families purchased concentrate. This high peak was the result of a six to seven cent price drop per can.

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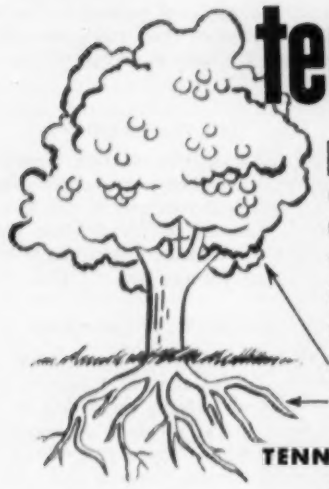

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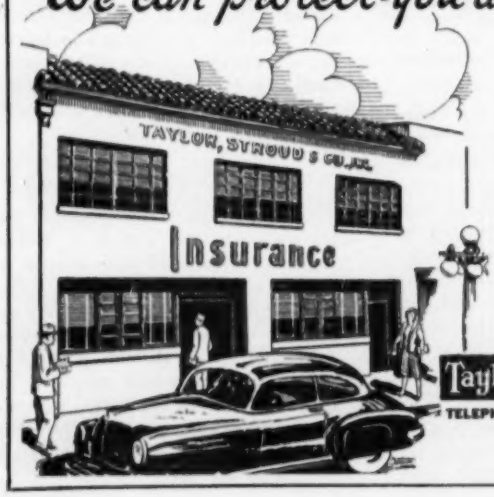

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Trees For Small Home Grounds

Some Native Trees are Beautiful and Useful

By JOHN V. WATKINS

Associate Professor of Horticulture, University of Florida

TREES ARE ESSENTIAL to the successful development of any landscape plan. Suitable kinds in adequate numbers must be carefully selected as the first step in any home beautification project. These may be natives that already grow on the property or they may be nursery-grown exotic species bought especially for the purpose. Trees relate the house and garden to the land and to the sky as well and scale relationship must be carefully considered. One must think in terms of mature sizes rather than of nursery grades when choosing trees for planting around the home. In the southeastern United States many semi-tropical species grow quite rapidly and assume considerable size in a comparatively short time. Many of these, too, cast very dense shade under which it is impossible to grow a lawn. These kinds are unsuitable for small residential properties and their use should be limited to parks, arboretums, and large estates.

Shade is most necessary in Florida because of the large number of intense sunny days. Broadleaved evergreens may be chosen if year-round shade is wanted, while deciduous species such as the dogwood, redbud, and mimosa, are best in some positions so that sunlight may be enjoyed during the winter.

Framing is an important function of trees in landscape design. Trees set toward the property lines on both sides, rather forward of the house, enframe the dwelling and the front yard and give finish and completeness that can be attained in no other way. For this purpose, small erect-growing species should be chosen for most homes.

Two or three somewhat larger broadleaved evergreen trees set at the rear property line will furnish a background that gives solidarity and definition to the plan.

Hardiness, adapability to one's soil type, long life, freedom from disease and insect pests, and resistance to strong winds are important qualities to be considered.

Some species are selected for their beautiful evergreen foliage, others are cherished for their striking blossoms, while still others are all-time favorites because of the fruits they bear.

While we admire the striking exotic species, we cannot forget that some of our finest and most useful trees are native. From more than 100 species which grow in Florida, one may select types to fill almost any need. Tree growing naturally on one's property should be left when they are good specimen of long-lived species. Weed trees, those that grow rapidly and have little decorative value and are short-lived, should be removed before the house is built. Later, nursery-grown specimens of desirable varieties should be selected and set out with care.

Collecting lawn trees from the woods has long been the practice in the South and thousands of beautiful specimens were secured in this manner. It must be remembered that many species are protected by law and cannot be dug withoue permission of the property owner. Every right-thinking person will want to respect property rights and will ask permission to collect before going into a woodland with digging and pruning tools.

Wild trees, growing in competition with their neighbors have far-reaching roots and it is impossible to dig them with satisfactory, compact root systems. When everything is considered, it is much more desirable and but little more expensive to buy trees from a reputable nursery. The nurseryman has transplanted, root-pruned, cultivated, fertilized, sprayed, and irrigated his stock, and his trees will attain maturity much more quickly in your garden than will trees of comparable sizes from the wild.

Transplanting is most successfully accomplished when trees are dormant and this will be between December and February in our locality. Before that time, it is a good idea to prepare the planting holes so that the locations will be ready for the trees at the right time. Dig holes that are large enough to contain root systems of the sizes you plan to acquire, throw in a layer of compost and a couple of handfuls of a mixed commercial plant food at the bottom, fill the hole with fertile woods soil and leave a slight basin to gather water.

Spacing is important. For trees to reach their best development, they should be given room to grow as individuals. Small trees like dogwoods and redbuds may stand 25 feet apart, magnolias and camphors about fifty feet, and the classic live oaks should stand 75 feet from their neighbors for good development.

Lawn trees should need very little pruning, but occasionally it is necessary to remove crowding, crossing, or interfering branches or those that have been injured by cold or wind. Sometimes it is essential that one or two leaders be reduced so that Y-crotch may be avoided.

Sharp, well-adjusted pruning saws, hand shears, and loppers are necessary accessories. Smaller branches are headed in with the hand shears, or removed close to the supporting member with the loppers, while the pruning saw is used for larger wood. Always make a preliminary cut about a foot from the supporting member. This will prevent the heavy branch from carrying away a strip of bark when it falls. The final pruning cut, then, is made very close to the limb from which the branch to be pruned arises. Painting the wound with a tree wound dressing or with good oil paint helps prevent checking and excluding wood-rot fungi until callus can cover the wound.

Generally speaking, the best time to prune ornamental trees is just prior to spring growth or immediately after blooming.

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Bananas Need Right Setting

Need Lots of Water and Sun for Good Results

By HARRY E. MILI

COMMERCIAL banana growing in Florida has never been successful to any extent, but this need not discourage the citrus farmer or home gardener for cultivating the banana for home consumption. It not only will provide enough fruit for family use, but will add a tropical touch to the garden which meets approval of discriminating gardeners.

Location plays the all important part when setting out the banana plants, which are really herbs, although common usuage prefers tree or plant. This tropical plant thrives on sunshine and sandy, porous, well drained soils. Non-stagnant irrigation ditches or irrigation cuts furnish sufficient water for the plant. In the yard, placement near kitchen drains is excellent.

The plant will bear within 14 to 18 months after being set out. Each shoot has one bunch of bananas and no more. For best growth all but three to five of the suckers, which grow up about the main stalk, should be cut. Timing this 'pruning' serves to extend the harvest time. Bananas should be cut from the stalk while still green and allowed to ripen in a well ventilated, dry place for taste improvement. Once the bunch has been removed the stalk must be cut close to the ground, for its bearing days are over.

Hurricane winds force the gardener to place his banana plant where some protection is provided. Winds much over 25 miles an hour do severe damage to the frail plants, especially if the tree is bearing, for the weight alone pulls the plant downward. Propping with poles or tying the plant to nearby trees keep it on an even keel. Planting near moss covered oaks provides too much shade for full growth, which reaches 15 to 20 feet in Florida.

Outside of taking precautions in selection of a site with sufficient water and a maximum of sunshine and wind protection, the plant requires little care. Lime fertilizer may occasionally be added to enrich necessary sandy soils. The plant will not thrive where soil content contains over 40 per cent clay.

The ideal growing conditions found in the Caribbean area find from 75 to 100 inches of rainfall annually, with not less than 2 inches during the driest month. Temperatures average above 70 degrees Farenheit for every month, and usually run higher. The soils must be low-lying, well drained and contain a high lime content.

Although these ideal requirements are lacking in Florida, most of the state will support bananas. Occasionally, frosts damage the plant, but seldom kill the roots. The long, rubbery leaves brown and wilt but fight-back to greenness.

Persons desiring to set out plants may purchase them from most nurseries in central and southern sections of the state. However, friends probably either have their own banana plants or know of persons who would be glad to let you have a few shoots.

For the home gardener, the banana plant furnishes fruit, a tropical appearance to the yard and fun to the grower. Further, the banana tree in the garden will surely furnish an enchanting picture to greet the eye of family and guest.

* * *

Precautions Against Termites

Frequent Inspections Will Cut Losses

By L. C. KUITERT

Associate Entomologist, Florida Experiment Stations

TERMITES were in Florida long before the first white settlers arrived. They fed on the dead wood and decaying vegetation in the forests. With the clearing of woodlands and construction of towns, where wooden buildings were placed within short distances of one another, termites found conditions excellent for their destructive feeding.

Many people refer to termites as "white ants". Actually they are more closely related to roaches than to ants. The termites may easily be mistaken for some ants because they are found in wood or may swarm about the house during the spring when termites swarm. Termites are also social in habit and have four wings as do the ants.

There are several characteristics which can be used to distinguish the termites from the ants. The termite does not have a slender waist, as do all ants. The wings of termites are almost equal in size, have indistinct veins, and are longer than the body. The wings of the ant have distinct veins and the hind wings are much smaller than the front wings. Termite damage can be recognized, as the galleries follow the soft wood of the annual ring and the walls are plastered with dirt and excrement. Powder post beetle damage may also be confused with termite damage. These beetles make small round holes from the interior to the surface of the wood and their galleries are full of wood powder.

Subterranean termites, when infesting wood out of contact with the ground, construct shelter tubes between the ground and their galleries that protect them from direct light, drying effects of the atmosphere, and exposure to enemies. These tubes also give them a covered runway to moisture in the ground.

The colony consists of four castes which differ in structure and function. The four castes are the winged males

(Continued on Page 40)

Cut Flowers Can Live Longer

Some Household Chemicals, Proper Temperatures and Careful Handling of Flowers Will Prolong Life

By R. D. DICKEY

Assistant Horticulturist, Florida Experiment Station

Presented before the Florida State Horticultural Society at its 63rd Annual Meeting in Winter Haven, Nov. 1, 1950

FOR MANY YEARS methods have been sought for prolonging the life of flowers after they have been cut from the plant. This information is needed by those who use flowers in the home and by those handling cut flowers commercially. Several individuals have done work which gives information on the keeping qualities of cut flowers.

Cut flowers usually carry enough stored energy in the stems to develop completely and, therefore, do not depend upon food produced by foliage to keep alive. The factor that usually limits their length of life is lack of water for the stem, foliage and flowers. Loss of water may be too great due to low humidity, high temperature and air circulation or the end of the stem becomes plugged, preventing enough water from being taken up by the stem to supply the top.

Careful handling and a few simple procedures all add up to a much longer life for cut flowers.

Most of the work in the past on factors influencing the keeping of cut flowers was based on the reduction of bacterial decomposition of the stems submerged in water. Disinfecting chemicals, cutting of the basal portions to eliminate clogging of the conducting vessels and clean containers were used. Ratsek showed that copper containers aided in keeping qualities, and ascribed it to the disinfecting action of copper.

Laurie reported on work done at Ohio State on the effect of copper on the life of cut flowers, as supplied by copper containers, copper wire, copper shavings, copper shot and brass shot. The results indicate that the prolongation of the life of cut flowers as affected by copper varies with the kind of plant used. One group included those which kept 1 to 2.7 days longer than the controls. In this group were such flowers as asters, calendula, snapdragon, clarkia, annual chrysanthemum, stocks, pansy, marigold, daffodil, godetia, nemesia, salpiglossis and Boston yellow daisy. The second group showed no difference in keeping quality between controls and copper containers. In this group may be placed schizanthus, rudbeckia, myosotis, feverfew, centaurea, penstemon, leptosyne and others. In only one case did copper prove detrimental and that was the carnation in which the keeping time was reduced one day.

Dorner found that flowers cut under water lasted longer, presumably due to the elimination of air from the conducting vessels. Laurie reported that the effect of cutting stems under water as compared with those cut in the air also varies with the plant used. Plants aided by being cut under water were snapdragon, carnation, sweet pea, aster, annual chrysanthemum, marigold and Boston yellow daisy, while calendula and stock showed no difference in effect. Anatomical studies of the stems showed a direct correlation in this respect between stems with large conducting vessels and those with small, the ones with large vessels being benefitted less by the under water cutting.

It is commonly believed that flowers keep longer in deep water than in shallow water. This is supposedly based on the assumption that absorption takes place along the stem. Tests were conducted in which flower stems were placed in different depths of water ranging from one-half inch to 10 inches. These tests showed that all cut flowers tried kept as well in shallow as in deep water; in many instances shallow water treatment increased the keeping qualities by 2 to 3 days. In this group were such flowers as snapdragon, carnation, pansy, aster, Boston yellow daisy, annual chrysanthemum, daffodil, salpiglossis, godetia, coreopsis, delphinium, cosmo and hunnemania. These results are explained on the basis that less surface is exposed to bacterial decomposition in the water and that absorption takes place from the base of the stem.

Post states that stems absorb water freely when it is near the temperature of the room. Cold water is not as readily absorbed by stems so it is better to place freshly cut stems in fresh water which is at a temperature of about 70° F.

Poinsettias, dahlias and poppies keep better if the cut ends of the stems are heated over a fire or if the lower one or two inches is placed in boiling water until the tissue is killed. In the case of poinsettia, the probable explanation of why these treatments improve their keeping quality is that the heating coagulates the milky latex, preventing it from oozing over the stem and plugging the water conducting vessels. The killed stems conduct water even better than the living tissue.

The use of chemicals to increase the keeping qualities of cut flowers is aimed at the reduction of bacterial activity, increase in transpiration, lowering the rate of respiration and providing the most suitable pH and osmotic pressure. Many chemicals have been tried but only a comparatively few have proven of value. Some that have shown some effect on reducing the rate of respiration are hydrazine sulfate, phloroglucinol and resorcinol. Sodium amytol was effective on sweet peas, supposedly because of its coagulative action on proteins. From the studies at Ohio State University they suggest several formulas which may be useful in the actual keeping quality of flowers.

A. Dissolve one ounce of hydrazine sulfate in 1 quart of water and use this as a stock solution. To another quart of water, add 2 teaspoonfuls of the hydrazine sulfate stock solution, 2 grams of manganese sulfate and 1 tablespoonful of sugar. This formula is particularly good for roses and carnations.

B. Dissolve ¼ teaspoonful boric acid in one quart water. This is useful on carnations.

C. A 10-15 per cent sugar solution prolongs the life of China asters.

D. To one quart of water, add ¼ teaspoonful of potassium aluminum sulfate (commercial alum), ¼ teaspoonful sodium hypochlorite (clorox), 1 pinch ferric oxide (iron rust) and 2 teaspoonfuls sugar. This solution is especially useful on cut roses and carnations.

Recent work by Hamner of Michigan State College has shown that one of the amino acids, amino N-Hydroxyl-B-alanine produced by the B. F. Goodrich Chemical Co., Cleveland, Ohio, is very effective in preserving red roses. This chemical not only prevents red roses from fading but it also delays opening of the bud, and permits a slower, more natural opening without undesirable reflexing of the petals as would be the case with commercial preparations.

There are commercial chemical products on the market for increasing the keeping qualities of cut flowers. Two well known ones are Floralife and Bloomlife. They appear to help in the

(Continued on Page 19)

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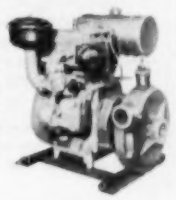

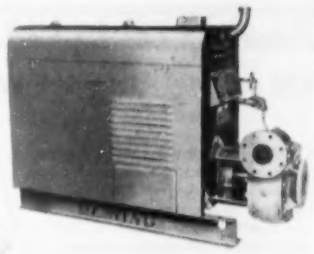

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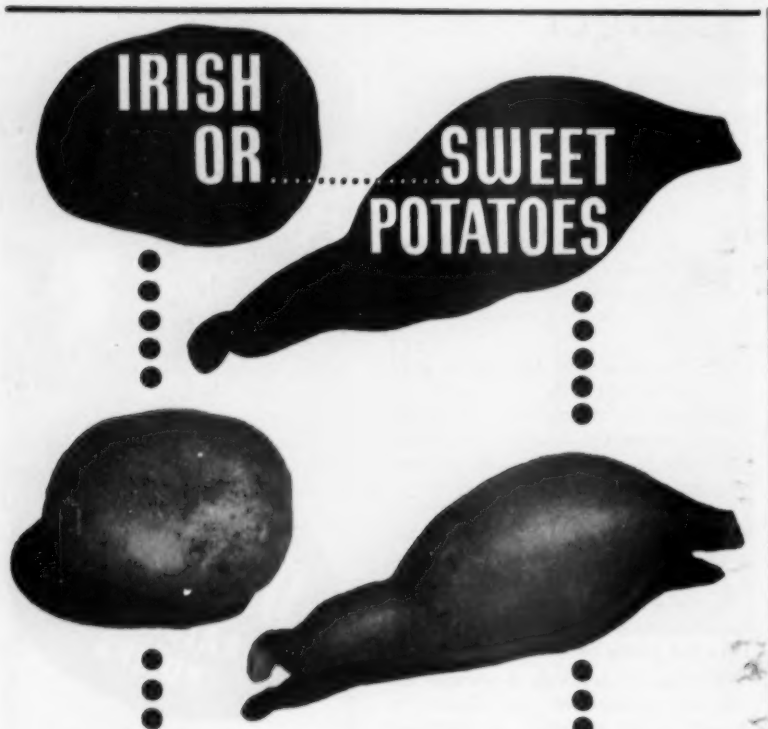

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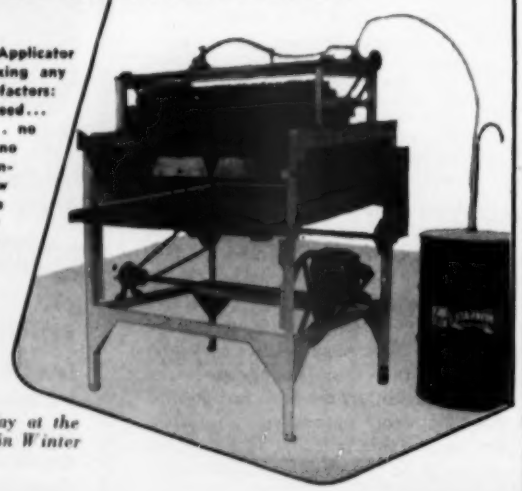

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A Starvation of Potatoes

Effects of Low Nitrate Nitrogen Told

By GAYLORD M. VOLK *and* NATHAN GAMMON, JR.
Florida Agricultural Experiment Stations

STATE EXPERIMENT STATION workers of the Hastings area observed that a certain type of leaf roll was exceptionally severe on potatoes in many fields on flatwoods soils during the spring of 1949. No disease organism was found. An examination of the soil showed that very high ammonia existed for that time of season and that the soils in question were limited in their ability to convert ammonia nitrogen to nitrate nitrogen as compared to soils on which there was no leaf roll.

The soils on which plants developed leaf roll were very acid, usually below pH 5.0, although all soils of such acidity did not produce the symptom. The sandier the soil, the greater appeared to be the effect of high acidity. Relatively high acidity ranging from pH 4.5 to 5.5 normally has been existent in this area for the control of scab.

Since 1940 the trend in composition of potato fertilizers has been toward the use of more ammoniates or ammonia forming materials, with a proportionate reduction in the amount of nitrate nitrogen. Formulas that had been used where the leaf roll occurred contained from none up to about one-fifth of their total nitrogen as nitrate.

Tests were set out in cooperation with the Hastings Potato Investigations Laboratory in the winter and spring of 1950 in which 2500 pounds of a 5-6-6 fertilizer per acre carrying nitrogen derived entirely from ammoniates and organics but no nitrates, was compared to the same formula in which two units of ammonia nitrogen were replaced with two of nitrate nitrogen. Potatoes grown with the fertilizer carrying no nitrate nitrogen developed the leaf roll. Where the fertilizer carrying two units of nitrate nitrogen was used the curling of the leaves was prevented, except in the very sandy spots where soil analysis showed that nitrates were rapidly lost by leaching. Elimination of the curling was accompanied by a 46 per cent increase in yield.

Treatments in which the amount of nitrogen in the high ammonia fertilizer was reduced did not eliminate the leaf roll, indicating that an excess of ammonia was not the direct cause although it is possible that high ammonia could enhance the trouble if nitrates were low. This agreed with plant tissue and soil analysis for ammonia and nitrate nitrogen. Nitrate nitrogen was high where leaf roll was prevented and low where rolling was present. The amount of ammonia in the plant was not related to the degree of roll. Plants exhibiting leaf roll characteristically have restricted root systems and close set tubers. This suggests that poor development of the root system was that direct response to inadequate nitrate nitrogen, and the rolled leaves a secondary response resulting from a poor balance between top and roots. The roll was permanent once it had taken place.

There was no apparent correlation between rolling of leaves and calcium, magnesium, potassium, phosphorus, iron or sodium contents of plant tissue on the limited number of samples analyzed for these elements.

It has been noted that virgin flatwoods soils of the type used for potatoes often have very poor nitrifying ability. Potatoes grown the first year on a typical flatwoods soil had leaf roll where non nitrate nitrogen sources were used in the fertilizer, but where nitrates were included the symptoms were eliminated and yields markedly increased.

The answer to the problem apparently lies in careful adjustment of soil pH to as high a level as is consistent with scab control, probably in the range pH 5.3 to 5.5, in order to stimulate nitrification; and the judiscious use of nitrate nitrogen to augment the supply of nitrates to the plant.

* * *

1951 Melon Growers

(Continued from Page 4)

First application of fungicides should be as soon as *first* signs of disease appear in the melon fields. If a grower cannot give close attention to his plantings, then he had better start to spray or dust as soon as the vines are a foot or a foot and a half across. However, money can be saved by closely observing the melon vines, and spraying or dusting delayed until first spotting appears; then application should be made, and repeated every seven to 10 days. The faster the plants grow, the sooner the next application should be made. Growers seem inclined to stop spraying or dusting too soon; second and third pickings can be obtained by maintaining vigorous vines. Of course, if prices have collapsed, maintenance of the melon foliage may not be profitable.

Hives of bees can be placed in or near watermelon fields at a profit to growers. The cost, five to 10 dollars per hive, is easily repaid by earlier and more abundant melons at harvesting. Use about one vigorous hive to three to five acres, and space the hives about 700 to 1000 feet apart.

These brief notes do not cover all of the methods of avoiding financial setbacks from watermelon growing. However, following these suggestions should give the average grower a better than even chance that his melons will sell, at a profit. The staff at the Leesburg laboratory is ready and willing to assist growers with their problems.

* * *

Average daily production of 1¾ gallons of milk for 10 months of the year, allowing two months dry period, is considered fairly good for a family cow if most of her feed is produced on the farm.

* * *

Burial caskets used annually in the United States require 102,000,000 board feet of lumber.

Cut Flowers

(Continued from Page 17)

keeping of some kinds of cut flowers, but are not so effective with others; however, they are especially valuable for roses. Vitamin B_1 has been ineffective in prolonging the life of a wide range of flowers, as has salt and aspirin.

Cold storage has been used for many years, particularly by commercial florists, to prolong the life of cut flowers. As a general rule most cut flowers respond favorably to cold storage though there are some exceptions. The best temperature at which to keep cut flowers is not the same for all flowers.

When cut at the proper stage of development cold storage will insure a reasonably long life for flowers after their removal from storage. It is recommended that the flowers not be crowded in the containers because of danger of mechanical injury and the decay that may result from poor ventilation. In most cases water should not be spilled on the flowers as it may discolor them.

Rose, Wright and Whiteman give considerable information on the cold storage of cut flowers. The temperature groups and the flowers recommended for storage at these temperatures by them are given below:

Group 1—35° F.—Chrysanthemum (*C. hortorum*, gladiolus, easter lily and peonies.

Group 2—35° F. to 40° F.—Roses and carnation.

Group 3—40° F.—Calla, dahlia, China-aster, sweet bouvardia, heath, forced irises, and lily-of-the-valley.

Group 4—45° F. to 50° F.—Orchids and gardenias.

Group 5—50° F.—Cut poinsettia.

Group 6—Should not be stored at temperatures lower than 40° F.—Clarkia, stocks, candytuft, delphinium (hardy or perennial larkspur), cornflower, feverfew, snapdragon, blue laceflower, English daisy, calendula, gaillardia, sweet violet (*Viola odorata*), and lupine.

Group 7—All have flowers whose petals shed quickly, almost regardless of temperature. Cannot be held lower than 40° F. nor for longer than 3 or 4 days without injuring the keeping qualities of the flowers after removal from storage — Columbine, stevia, babysbreath, delphinium (annual larkspur), baby primrose, sweet pea and forget-me-not.

Group 8—Statice and strawflowers may be kept at 35° F. for 3 to 6 weeks or they may be dried with the retention of their original color and shape. Strawflowers are usually dried.

Group 9—Garden phlox, common foxglove and common white foxglove are not usually satisfactory for storage but may be held for 3 or 4 days at 40° F.

Humidity is an important factor affecting the life of cut flowers, whether they are kept in the home at room temperature or in commercial cold storage, because the length of life of most flowers is reduced by too low a humidity. A relative humidity of approximately 80 per cent is satisfactory for all of the flowers discussed above.

* * *

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Irrigation News

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VOL. 2 No. 1 SOUTHERN EDITION • February, 1951

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Gilbert, S. C.—Back in 1947, when Walter P. Rawl saw what a fellow orchardist had accomplished with irrigation, he made up his mind to buy a sprinkler system. That winter he built three ponds to supplement his big lake. Then he purchased his aluminum sprinkler equipment from Columbia Supply Co., Columbia, S. C.

5 to 6 bushels per tree

Last August Rawl reported, "Now I can irrigate my entire 600 acres, including 175 acres of peaches as well as field crops. My 4-year-old orchard picked 5 to 6 bushels this summer—as many as nine peaches on a one-foot limb, all above 2 inches in diameter. Without irrigation I would have done well to grow four peaches on the same length limb. My increased yield of higher-priced peaches paid the cost of my irrigation system, not including ponds. I wouldn't take twice what my system cost and do without one!"

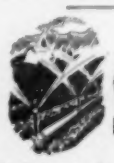
Rawl has two men move laterals on one side of his main line while sprinklers operate on the other. He spends $1.25 for gasoline and about $1.25 for labor to put an inch of water on an acre.

Southern Crops Thrive on Irrigation

Throughout the South, recent reports show that sprinkler irrigation steps up farm production. In Georgia, corn made 70 bushels per acre irrigated—only 20 without. Irrigated bush beans in Tennessee tripled the unirrigated yield. In South Carolina, dairymen increased milk flow 35 pounds an acre per day by irrigating pastures . . . besides getting 1½ tons more hay per acre. Supplemental water boosted tobacco yield 500 pounds an acre in Georgia.

Now . . . a Good Time to Plan Your Water Supply

If you're looking forward to future use of portable sprinkler irrigation on your farm, start now to plan an adequate, convenient source of good water. Streams or lakes on your property may be enough. But if they're small, or tend to dry up, you may need to build one or more artificial ponds. Or wells may be your best water source. Why not talk it over with your county agent or soil conservationist?



Sprinklings

Mississippi planters use sprinkler irrigation to bring cotton up—increase yield one-third.

* * *

A Texas cattle man irrigates 130 acres of pasture, reports carrying 3 to 3½ animals per acre from April to October.

* * *

You'll find many answers to your questions on portable sprinkler irrigation in Alcoa's 32-page "Pipelines to Profit" book. Mail coupon below for your free copy.

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Chik Chats

by JOHN BIDWELL

During the next few months most of us will be starting our chicks for next fall's egg production. The question always comes up as to what chicks to buy. Let's just be frank and say you should get the best chick that money can buy for the greatest profit from the chick. When buying look for good livability, rapid growth, high egg production, few culls, etc.

To find this chick you can visit your neighboring poultrymen and ask them about death loss, culls, when they came into production, how many eggs they get, and how long they layed. Remember ten months of 55 percent egg production is necessary for high profit. Compare egg production against the number of pullets housed which should be 85-90 percent of chicks purchased.

Don't experiment with new chicks because you are gambling almost $2.00 on each one you buy. Get a chick that is doing well in your neighborhood and you can't be far wrong.

After ordering your chicks you should go out to your brooder house and clean it up. Scrape it down, scrub it down, and then disinfect it all over. Especially the floor and lower half of the walls. Soap and water is good but a strong disinfectant is better, preferably one with wood preserving qualities included.

You need one square foot of floor space for each two chicks up to six weeks of age. Example, a house 10'x10' or 100 square feet will house 200 chicks to six weeks of age. You must have enough room for the chicks. The house must have plenty of ventilation but no drafts around the floor.

Any type of brooder will do just so you can accurately control the temperature. Disinfect it before using and check it to make sure that it works. You should have an extra wafer for the thermostat.

The litter may be of any material that is absorbant and rough enough to prevent packing. Wood shavings are good and so is ground sugar cane. If shavings are used they should be heavy with plenty of lean—like good bacon.

The litter should be covered with paper for the first four days. Four layers of newspaper can be used and one layer taken up each day. If the brooder house is large, a ring of cardboard standing on edge, placed around the brooder will keep the chick from getting lost from the heat. The ring should not be closer than three to five feet from the edge of the brooder stove, and it should be removed by the end of the first week. The corners of the house should be rounded off so as to prevent the chicks from piling up in them.

Feeder space of one-inch per chick is needed for the first three weeks and two-inch per chick to the sixth week.

Watering space should provide two one-gallon founts per 100 chicks to three weeks and one three-gallon fount to six weeks per 100 chicks. Automatic waterers may be used after the second week. Allow two feet of trough per 100 chicks. The day before the chicks arrive start the brooder stove. Set it at 90° for the first week, gradually reduce the temperature by 5° a week until the temperature is lower than the lowest expected temperature during any day or night. Then remove the brooder stove.

Scrub and disinfect the feeders and waterers and place them in brooder house before setting out chicks. Fill the feeders to the top and put some feed on the papers covering the litter. Place the feeders spoke fashion around the brooder stove. Keep the feeders full the first week; then about half full. Make sure the feed does not stay in the feeders more than two days as it gets stale and the chick will not eat it well. You can mix the old feed with fresh so as not to waste it.

Fill the waterers about half full and use in the water a drinking water disinfectant for starting chicks for the first four or five weeks. Space them evenly around the brooder stove. Change the water at least once a day and disinfect it each time.

The feeders should be disinfected every few days and allowed to dry before refilling and putting back in the brooder house.

Use a feed designed for starting egg production chicks and follow the manufacturer's directions to the letter. A medicated feed will help prevent coccidiosis.

Remember the first few weeks of a chick's life are the most important and if you expect to have them make you a profit you should stay close to them during this important time.

* * *

DICKMAN PLANTS

Paul Dickman has planted about 400 acres of Pangola grass on his pasture along U.S. Highway 541, north of Ruskin. This makes a total of 646 acres of improved pasture in this block and includes a considerable area where clover is planted with Pangola. Most of the clover is planted where artesian water is available. This permits irrigating during extremely dry periods.

There are about 3½ miles of drain ditches in the pasture. Most of them have control structures which can be closed to hold water during dry periods and opened for drainage in wet weather.

* * *

CONTOUR GROVES

Conservation farmers are continuing to set out their new citrus groves on the contour. Recently, Soil Conservationist Walter Shaffer, assisted Chas. Pool of Clermont, E. S. Mathews of Plymouth, and the Apshawa Groves of Minneola in staking groves on the contour. Charles Pool put out a new 45-acre planting; Mathews finished staking his new grove at Groveland; and Apshawa Groves completed 60 acres planted on the contour.

Contour planting eliminates up and down hill cultivation and allows easier operation of grove equipment. Next spring the new groves will be planted to Hairy Indigo for soil improvement and to reduce wind and water erosion.

* * *

Florida has the second largest woodland area in the United States.

New Vegetable Varieties

New Types Resist Disease and Insects

PART I

By DAVID G. A. KELBERT

Associate Horticulturist, Florida Agricultural Experiment Stations

Presented before the Florida State Horticultural Society at its 63rd Annual Meeting in Winter Haven, Nov. 1, 1950

SINCE 1944 when the last information on vegetable varieties for the State of Florida was compiled, hundreds of new varieties and lines of vegetables have been tested and evaluated by experiment station workers in all vegetables growing areas in the State. Much of the information has been contributed by these investigators.

Plant breeders have placed much emphasis on resistance to plant diseases in the breeding of vegetables. The number of new varieties which have resistance to one or more serious diseases testifies to the great strides that have been made along this line. Resistance to disease (and in some instances to insects) is highly important. In fact, in some areas it is absolutely necessary where soils have become so contaminated with destructive diseases that the growing of susceptible crops is no longer profitable. Rotation of crops on these lands tends to reduce the severity of infection on the next susceptible crop, but proves of little value if conditions are optimum for the development of disease. At present the only answer to the problem of infested soils is resistant types.

Many modern vegetable varieties are not only resistant to soil-borne diseases such as fusarium wilt, bacterial wilt, potato scab, etc., but also extremely resistant to diseases which cause leaf and fruit spots such as early blight, late blight, grey leaf spot, and so forth. One of the new cantaloupe varieties is even considered resistant to attacks by aphids as well as to powdery mildew. The breeding of these characters into vegetables has required years of diligent work by the men responsible for the great advances that have been made. There are still many problems to be solved. Unfortunately many of the new varieties, especially those resistant to certain diseases, seem to be adaptable to a very limited area and environment. This seems to be especially true of tomatoes. Many new tomato varieties that seem to have nearly every desirable character such as multiple resistance to diseases, excellent quality and high yield capacity in the area of their conception fail miserably in another area, often only a few miles away with cultural practices and other environmental factors apparently identical with its home area. This fact is extremely discouraging but is a problem that must be solved. In order for a new variety to gain favor with seed producers and distributors, it must be adaptable to a fairly wide area and range of conditions. It would, of course, be impractical for seedsmen to handle a different line or variety for each locality.

This lack of general adaptability is reflected in the large number of recommended varieties in the following group of vegetables:

BEANS

Several new varieties of bush beans have proven superior to Tendergreen and Black Valentine. The most outstanding beans of the group are Contender, Top Crop and an unnamed variety No. 1515. All three of these are resistant to powdery mildew and mosaic. Contender and Top Crop have been outstanding in recent trials at Belle Glade, Homestead and Gainesville. No. 1515 is evidently adapted to a wide variety of soils and conditions as it has been grown successfully on sandy soils, the Gulf Coast, Gainesville and Plant City areas and the organic soils of the Everglades and the marl soils at Homestead. Although pod shape and yield capacity of these new varieties have proven satisfactory in tests, several workers have mentioned the fact that they show the undesirable characteristic of producing numbers of pods in contact with soil; but none have discarded the variety because of this fault. Cherokee Wax is still considered the best shipping variety of this type of bean.

There has been little progress in the development of new pole bean varieties. No. 191 and McCaslan have been superior to all others tested. The following new introductions have been tested at Gainesville and several other stations: Canfreeze, Green Savage and Alabama No. 1 Green Pod. All are prolific but lack the right pod characters to compete with the No. 191 type.

ENGLISH PEAS

Dark Skin Perfection is being recomended in the Sanford area.

SOUTHERN PEAS (FIELD PEAS)

This has been a sadly neglected crop and few references are found to desired varieties that can be grown except for use as cover crops. Many people do not realize that there are several varieties delectable to the palate when properly prepared. The most widely known variety is the Black Eyed Pea, but there are others which to the writer's taste are far superior. Those recommended for trial are Wood's Sumptious, Purple Hull, Blue Goose, Brown Crowder, Virginia Blackeye and Alabama Crowder.

CABBAGE

Markets for Florida cabbage show a decided preference for the small solid head type, such as the variety Copenhagen Market. The new variety Bonanza has been recommended as an outstanding variety for compactness, solidity and small core on organic soils, but is considered too late for the Homestead section.

The soil-borne disease, Cabbage yellows, is becoming more wide spread throughout the state, hence varieties resistant to this disease are becoming more important. Soils once infested retain the disease and susceptible var-

(Continued on Page 32)

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Insect-Free Work and Play

Insect Repellent Materials and Their Use

By L. C. KUITERT
Associate Entomologist, Florida Experiment Stations

IN his never-ending search for ways and means of finding relief from insect hordes that have and probably will continue to plague him, man has attempted various methods of attack.

Probably the very first method used was that of attempting to repel the insect pests. The first repellent, whether we can now call it a repellent or not, was the smoke from man's fires. This primitive method of warding off insect attacks was, and still is, more or less effective. Whether we realize it or not, the smoke from our campfires, cigars, cigarettes, and pipes still act as an effective repellent.

Although man is no longer dependent upon a mass of smoldering combustibles placed to windward for driving off insects, the principle involved in using repellents remains the same. Fortunately, not because the insects have changed appreciably, however, man has developed other methods of insect control such as baits, attractants, contact and stomach poisons, and fumigants to aid him in the struggle for protection from their annoying and pestiferous attacks.

Many preparations have been recommended as efficient insect repellents. However, laboratory and field tests have shown that a repellent may vary greatly in effectiveness. There is considerable variation in the effectiveness of repellents when used on different individuals. For instance, the same material may protect one person for several hours; it may be effective on another only for several minutes. Also, materials capable of prolonged protection against the malarial mosquito are not effective against the pest mosquito. Because of the extreme variation in effectiveness of individual chemicals as repellents, it is still impossible to name even one that is reasonably effective against all species of insects biting man.

It was learned soon that the old mixtures of citronella and pennyroyal, which had been used for so long to ward off mosquitos, punkies, and blackflies, had little value in such areas as Burma or the Southwest Pacific. These materials gave inadequate protection; they had an objectionable oiliness, and they did not last long enough, especially on wet and sweating men! Probably because more than comfort was involed for the troops, the armed forces made an extended effort to find an improved repellent which could be used by troops moving into mosquito-infested areas. In an effort to find improved repellents for use by the armed forces, scientists found more than 500 organic chemicals superior to the older repellents containing aromatic oils.

Principal materials resulting from these investigations, and recommended and issued for protection of troops against biting insects, were dimethyl phthalate (tha-late), indalone, and Rutgers 612. Each of these materials was particularly effective against certain species of insects. Later it was found that a mixture of these materials, in the ratio of 6 to 2 to 2 respectively, was effective against a wider range of species than any of the individual repellents. This mixture is now known as the "6-2-2" mix.

All of these materials are applied in the same manner. About twelve drops are shaken into the palm of one hand, the hands then rubbed together, and the repellent applied in a thin layer to the face, neck, ears, hands, and wrists. It is necessary that it be uniformly distributed over the area to be protected, as the insects will bite through places inadequately treated or where the material has been rubbed off.

Last summer, black gnats were so numerous in some sections that they troubled the eyes of many children particularly. "Rutgers 612" was found to be very helpful, although by no means completely effective against the pests. Applications made to the entire face were unsatisfactory. Sooner or later some children would get the material into their eyes or mouths. Then, it was learned that this material was applied best in small amounts on the forehead, under the chin, behind the ears, and on the back of the neck. Under these conditions it was necessary to make frequent applications. It may be used very satisfactorily by folks working in the garden and around the yard. It is also handy to have around during the outdoor picnic season.

Another method of application which is beneficial for the people who are taking camping trips is the treatment of clothing. Repellents applied to clothing are effective for a number of days. Application can be made by hand by shaking about fifteen drops of repellent in one hand, then rubbing the hands together and applying as evenly as possible to socks, shirts, and trousers. Repeat this procedure until reasonably good coverage has been obtained. Applied to the suit, or shirt and trousers it will greatly reduce bites from ticks and fleas as well. The recommended repellents will give protection for one to five hours, depending on the rate of application, the species of insect, humidity, and the amount of individual perspiration.

There are certain precautions to be followed when using repellents. They should never be applied to cuts, sores, or tender places such as eyes and lips, because they will cause temporary smarting. As all of the liquid repellents are solvents of paints, varnishes, and many of the plastics, care should be taken to keep it away from plastic watch crystals, flashlight cases, and synthetic clothing. They can be applied safely to cotton and wool clothing.

At best, repellents only offer an important means of protection for individuals in isolated places. This would include fishermen, hunters, picnickers, and others who frequent certain areas where permanent control measures for mosquitos, sandflies, and chiggers are impossible because of unfavorable terrain—also in other places where control is possible but low value of land or the sparse population make it un-

(Continued on Page 27)

Spring Fertilizer On Pastures

Now Is the Time to Make Your Fertilizer Plans

By G. B. KILLINGER

Agronomist, Florida Agricultural Experiment Stations

THE TIME is near to refertilize those permanent pastures for maximum early spring and summer grazing.

Pangola, Bahia or Bermuda pastures will all start new vigorous growth throughout the Florida peninsula during late February and early March. This new growth can be hastened and the quality and quantity improved by applying 400 to 600 pounds per acre of a 6-6-6 or 5-7-5 fertilizer between February 15 and March 1st.

Do not apply 0-10-10 or 0-14-10 to grass pastures now and expect much in the way of visible results. Grasses need nitrogen to make them grow off in the spring. Carpet grass can be fertilized the same as the three grasses mentioned. However, it will not produce as much tonnage of forage.

Grasses analyzed after receiving 500 pounds of a complete fertilizer contain over 50 percent more calcium and phosphorus than the same grasses not fertilized. Protein and potassium are also usually increased.

All pastures growing on acid soils need re-liming every 5 to 7 years and every 4 or 5 years when legumes are grown with the grasses. Check back on your past pasture program and if it is time to re-lime, apply 1 ton of calcic or Dolomitic limestone per acre early this spring.

After danger of heavy frost is past Bahia and Bermuda pastures can be stimulated into rapid growth by burning. Data from Georgia indicates that Bahia grass will produce from 15 to 30 percent more seed per acre following a late winter or early spring burn. In most instances burning of pastures is not recommended as the over all season yield of herbage is generally reduced when this practice is followed.

Farm pasture-land should be fenced and cross-fenced to best utilize the available feed. Rotational grazing of cattle from one field to the next as the pastureage is grazed down allows for better utilization of feed and a few weeks rest for pastures between grazings is good for the grass or legume. Cross-fencing pastures also facilitates fertilizing pastures.

Livestock should be taken out of fields during fertilization and kept out for several days, or untila good shower or rain or several heavy dews have dissolved the fertilizer material. Most nitrogen an potassium materials are poisonous to cattle if taken in any quantity. It is well to destroy all the old paper fertilizer bags to prevent livestock from licking or eating the paper which is contaminated with fertilizer.

On sandy soils in the Florida peninsula it is best to broadcast fertilizers on the surface. On clay soils such as in North and West Florida, if the fields are rolling to hilly, it is well to drill the fertilizer into the soil or cut in with a disk, as much plant food can be lost by surface run-off.

In conclusion, too much stress can not be placed on fertilization. More acres of Florida pastures never feel the effects of fertilizer than do. Florida soisl are known to be very low in most major plant food elements and many minor elements. Therefore little forage of low quality can be expected from most Florida soils, unless the proper fertilizer and lime treatments are made. Sufficient data are at hand demonstrating the increased nutritive value and yields of grasses and legumes when fertilized.

It has been reported that some cattlemen are using an 0-10-10 or 0-14-10 fertilizer on grass pastures with no legumes. This fertilizer can not be expected to produce much visible results. Grasses need nitrogen and unless it is supplied in the fertilizer or by a good legume the nutrition is out of balance and poor growth results.

Let's consider our permanent pastures in the same light as cultivated crop land and give them more attention in 1951 by proper fertilization and careful management of grazing.

Over-grazing and under-grazing of fertilized pastures is costly. A happy medium between this over and under grazing is desired and will produce the greatest return throughout the year.

* * *

Chimney Corner

(Continued from Page 6)

left so that the cats can get inside the foundation.

Poisoning is one of the best means of control. There are various rat poisons available, some of them not dangerous to other animals or poultry. If there is a heavy infestation it may pay to have an old-fashioned rat hunt. These are good sport and the results are fine. A few good dogs, perhaps a ferret, and an active group of men and boys comprise the army. Every rat killed and every nest destroyed is an economic gain.

* * *

LOYALTY

A GREAT CRY has been raised by college and university professors in several states when they have been asked to sign an acknowledgment of their loyalty to the United States. They declare that they should not have to do such a thing. That it is beneath their dignity or something of the kind.

This is pure bunk. We ask a public officer to declare his allegiance; a soldier in any one of the services must do so. Why not the educator? His is the most important job of all in the development of our future citizens. The fact that they object causes them to be a suspect. The University of California was exactly right when it dropped from its faculty those members who did not have the guts to declare their loyalty to their nation. They deserve no place in the educational program of this country.

This also applies to such objectors elsewhere.

J. F. C.

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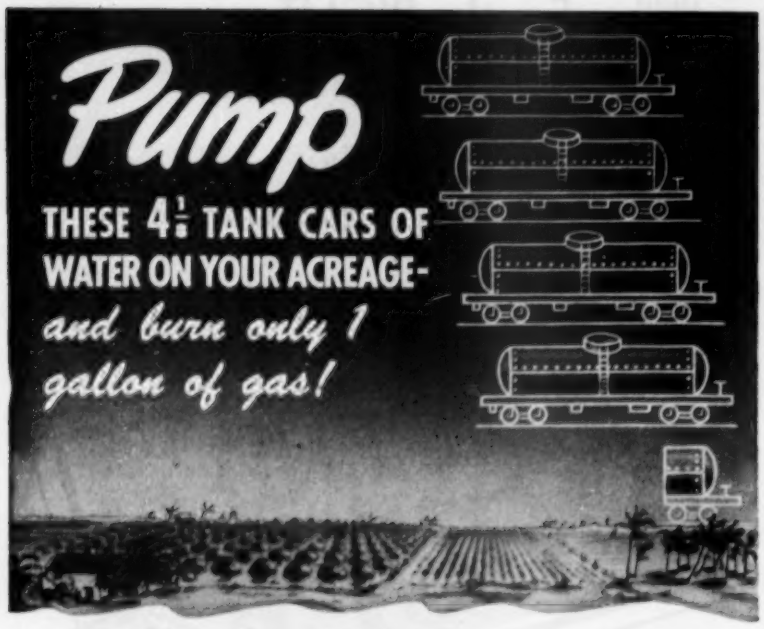

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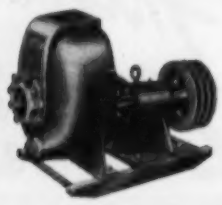
Sarasota, Florida — Southern Supply Co.



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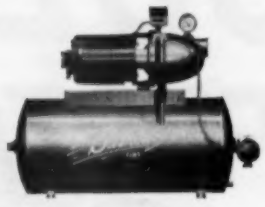

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Use Improved Crops, Practices This Year

TO DO THEIR SHARE in filling the need for higher production of livestock and some field crops, Florida farmers were advised by the University of Florida Agricultural Extension Service to give more careful attention than ever to improved practices that should help them to increase yields this year.

"With the exception of peanuts for harvest," Agronomist Russell Henderson pointed out, "Florida farmers are being asked to produce field crops as large as or larger than those they produced in 1950. To do this they will have to use improved varieties and practices and, with some crops, expand acreages."

Florida's allotted acreage for peanuts for harvest this year is about 16 per cent smaller than that of 1950, but there is no limit on acreage to be planted to cotton. With cotton prices supported by the Agricultural Act of 1949 and in view of the pressing need for more cotton, many farmers are expected to increase their acreage of this crop.

To get maximum yields, Mr. Henderson suggested that farmers plant high-yielding, wilt-resistant varieties of cotton, such as Coker's 100 and Stonewilt, provide adequate fertilizer, and follow proven pest control practices.

To produce more livestock to meet military and civilian needs, farmers must increase their acreages and yields of feed crops and temporary and permanent pastures. Dixie 18 corn, Hegari grain sorghum, Southland oats, and CP 29-116 and F31-762 sugar cane, planted on suitable land and properly fertilized will help them increase feed production, while Pangola, the Bahias, and other improved grasses and Louisiana White, Crimson, and Kenland Red clovers, planted, fertilized, and managed by approved methods, will enable them to increase their pasture acreage and pasture carrying capacity.

The Extension specialist emphasized that efficiency in operations will be especially important this year in view of somewhat smaller supplies of labor, farm machinery, fertilizers, and pesticides. Seed of improved grasses, corn, and oats will be more plentiful than last year, but seed of adapted clovers and high-yielding cottons will be scarce.

Mr. Henderson urged farmers to follow improved practices such as adequate use of fertilizers and pesticides, proper inoculation of clover and other legume seed, good preparation of seedbeds, mowing, chopping, and cultivating to control weeds, and use of superior crop varieties on lands suitable for them.

* * *

5500 ACRES IN MELONS

Lake County farmers are looking forward to a 5500-acre crop of watermelons in 1951, according to County Agent R. E. Norris.

The majority of melon growers in the county expect to plant the Cannonball variety, with Tom Watson, Congo, and other varieties also being used.

LARGE LUPINE ACREAGE

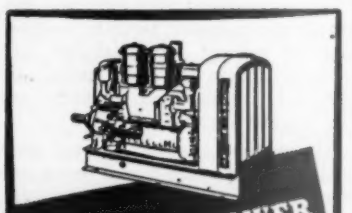
Columbia County farmers have planted 4,500 acres of blue lupine as a fall cover crop, according to County Agent James N. Watson. Part of the acreage has been planted to pasture grasses and most of the rest will be planted to corn. After the seed are combined next spring, the lupine will give an abundance of nitrogen to the grass and the corn.

Watson reports that the 40,000-pound drying plant at the air base at Lake City has stimulated the farmers in producing their own seed for the next crop.

* * *

FARMERS GETTING PINES

Volusia County farmers are expecting delivery of 24,000 slash pine seedlings this month, according to William J. Platt, Jr., county agent. The seedling, at $1 a thousand, are being furnished by the Hudson Paper Mills, Inc.



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How To Understand pH

By RICHARD A. CARRIGAN
Biochemist, Department of Soils, Florida Agricultural Experiment Stations

(Reprinted from Atlantic Coast Line Agricultural and Livestock Topics)

MOST FARMERS realize the extensive contributions made by the science of chemistry to our understanding of soil fertility. Among other things, a knowledge of soil chemistry has made it possible to correct undesirable acid conditions where these exist in the soil.

The need for lime to combat soil acids and to supply calcium to acid soils has been recognized for many years. In the early days, however, before chemists had learned how to measure the acid condition of a soil, the use of lime was frequently attended by unsatisfactory results. These disappointing experiences were often the result of using too much lime, or of using lime when it was not needed at all. Difficulties of this kind were largely the result of an incomplete knowledge of soil chemistry. In 1910, chemists simply did not know how to measure soil acidity. Lacking this basic information, earlier agricultural workers found it difficult to decide which soils needed lime, how much to apply, and how to measure the results achieved.

This brings us to the principal subject of our discussion, namely, an explanation of how chemists specify the exact degree of acidity possessed by a soil. In the past, attempts have been made to state the results of a soil acidity test in simple words that were supposed to be easily understood without any special knowledge of chemistry. Thus, one might say that a certain soil had been tested and found to be strongly acid, moderately acid, weakly acid, or even neutral, but these attempts at simplification were unsatisfactory even for non-technical people. What was needed was a scale of *numbers* that could be used to specify in a precise manner the exact degree of acidity as determined by the laboratory.

By the time adequate methods for measuring soil acidity had been developed, chemists were already using what is known as the pH scale for this purpose. The term "pH" is thus the chemist's symbol for indicating a particular degree of acidity.

The scale of pH numbers runs from about zero to approximately 14; the lower the pH the stronger the acid. Although we are concerned primarily with soils, the pH system of describing the strength of acids also applies to any material of which water is the chief component. It will, therefore, be convenient to list the pH values of some familiar watery solutions by way of helping to form some idea of the meaning of these numbers. We will not try to present a scientific definition of pH since this is unnecessary and would require an involved technical discussion.

By way of illustration, we can begin with a familiar acid, for example, muriatic acid. This material is a typical strong acid; it is powerful enough to dissolve limestone and is very corrosive to human skin. It has a pH value in the neighborhood of zero, thus illustrating the point that strong acids have very low pH values.

Going up the pH scale, we may take lemon juice as an example of a somewhat weaker acid with a pH of about 2. Proceeding to even weaker acids, the pH value oftomato juice is likely to be about 4.

Ordinary distilled water in contact with air will contain a trace of carbonic acid, though the acidity is so extremely weak as to be undetectable to the taste. The pH in this case will be in the neighborhood of 6.

Absolutely pure water, free of any acid whatever, has a pH value of exactly 7. A pH of 7, therefore, represents the neutral point of the pH scale, since water is neither an acid nor an alkali.

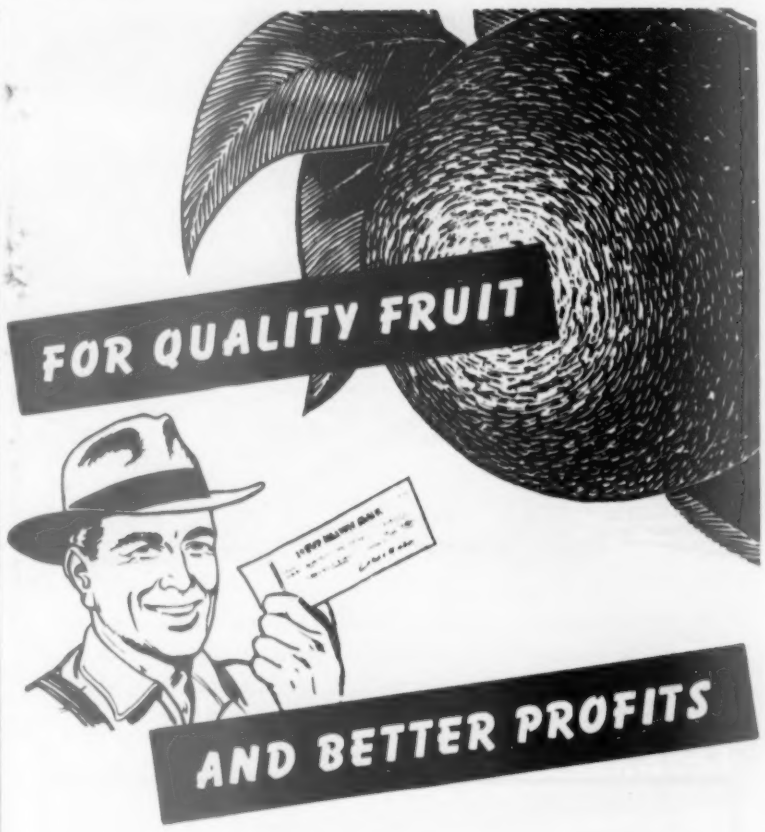
Some materials have the ability to destroy acids and are said to be alkaline. The presence of such an alkali is indicated by a pH value greater than 7. For example, a very weak alkali like agricultural limestone, may give a pH value of about 8 when in contact with water and air. A very powerful alkali, such as ordinary lye, may have a pH value near 14, the approximate upper limit of the pH scale.

When we apply the pH scale to soils we find that very few of them are more acid than pH 4, though many of the flatwoods soils of Florida have pH values between 4 and 4.5 and are thus quite acid, as soils go. In the absence of marl or limestone, muck and peat soils are quite often acid, with pH values below 5.

In the native state, the sandy ridge soils of Florida are typically less acid than flatwoods soils, with pH values ranging from about 5 to about 6.5. Under certain conditions of cultivation these soils become more acid, the pH eventually falling below 5. This trend is reversed in practice by applying ground limestone or dolomite but this must be done in a controlled manner or damage may result. In citrus groves, for example, the grower should avoid adding so much limestone that the pH rises above 6.

In this connection the pH scale of measuring acidity has proved of immense value. Before chemists had applied this method to soils, it happened in many cases that too much lime was used, resulting in pH values considerably in excess of 6 with consequent severe injury to trees. Following these disastrous experiences, growers tended to blame their difficulties on the lime. As a matter of fact, some lime was needed; the real cause of trouble was the lack of a method for determining the degree of soil acidity and controlling the addition of lime to avoid a harmful excess.

A slightly acid condition in the soil is desirable for most crops and many cultivated soils are found to have pH values between 5.5 and 6.5. Marl soils, however, are alkaline and tend to have pH values near 8. For reasons not well understood, these high pH levels in natural marl soils are not always as harmful as an equal degree of alkalinity would be in an originally acid soil which had been overlimed to pH 8. Nevertheless, some difficulties are encountered because of the high pH levels of marl soils.



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Mixing Vegetable Sprays

Safety, Results Depend On Compatability

By E. G. KELSHEIMER
Florida Agricultural Experiment Stations

FLORIDA's mild climate makes possible the growing of winter vegetables, but also provides ideal conditions for the development of many insect pests throughout the annual cycle. The Gulf and Atlantic Ocean, which keep our summer temperatures down and our winter temperatures up, also keep air humidity at a high level and thus favor the development of various plant disease organisms. And our heavily leached soils are all low in one or more of the nutrients essential to heavy production of vegetable crops. Certain of these nutrients can be supplied economically in small amounts to the foliage of growing crops by means of sprays.

It is possible to apply these insecticides, fungicides and nutrients separately, of course, and we know pretty well what we can expect from them when applied in this manner. We also know from experience and from reports by manufacturers that certain combinations of materials are reasonably safe and effective. And we know that it is cheaper to apply them in combination.

Much valuable testing is done by commercial companies long before their products appear on the market. Some of these companies have worked on the compatibility of their products with other chemicals, and have made available to dealers and growers charts which indicate which chemicals may be mixed in the same spray tanks. These charts are generally dependable, but no combination can be considered as absolutely safe on all crops or in all seasons unless they are actually tested under a variety of conditions.

Damage to crops by foliage burn or by reduction in yield is only one of three possible ways in which two or more materials can be incompatible. It is possible—and this is especially true of some of the organic materials—for a second material to change the chemical structure of the first, so that an insecticide or fungicide may be rendered ineffective. Finally, a combination may change physical properties, so that the mixture may plug up spray nozzles, settle out too quickly or gum up spray tanks.

In many cases, certain combinations thought to be safe have burned our crops. In many cases, too, growers have combined as many as four and five materials without apparent damage. We get so many questions at the Experiment Station as to safe and effective mixtures that we embarked on a research program to study these things last year. This preliminary report is an outgrowth of this work.

Six insecticides, six fungicides and four nutrient materials were tested last spring in all possible combinations on peppers and tomatoes. The insecticides and fungicide combinations were tested on pole beans.

Before considering the results secured, it should be recalled that spring 1949 crops grew under abnormal drouth conditions, and with abnormally high temperatures.

With no leaching rains occurring, irrigation was general and available fertilizer nutrients built up rapidly as a result of fertilizer additions and oxidation of soil organic matter. Nitrates up to several hundred parts per million were common on sandy soils, whereas levels of 50 or 60 ppm. are considered adequate. As a result of high temperatures and high fertility levels, tomato, pepper and bean plants grew vigorously and were very succulent. They were abnormally susceptible to wind-burn, and proved extremely sensitive to damage by spray materials.

Leaf roll developed rapidly after the application of the first combination sprays, and the amount of roll correlated with actual damage to the leaves. This damage in some cases was a definite burning, in others a chlorosis, and in still others a spotting of the foliage.

All plants subsequently recovered in some degree from the effects of this spraying, and yield data from these plots failed to show as marked differences as developed in the leaf roll data. The only chemical which actually reduced leaf roll when applied as a spray in this test was manganese sulphate; this also was the only chemical which significantly increased the yields of marketable fruit. The soil was known to be high in pH (around pH 7.0) and deficient in manganese.

Because of the nature of the season, neither disease nor insect pests were serious, and under these conditions continued sprays decreased yields. This freedom from disease and insect pests occurs so seldom in Florida that we have no slightest intention of suggesting that use of either class of materials be stopped. However, for our purpose of evaluating phytotoxic effects it was ideal.

All three types of materials—insecticides, fungicides and nutrients—have important effects on the normal balanced nutrition of the plant. Since this is so, and since both classes of pesticides are essentially poisons, such materials usually have deleterious effects on plants, and their application is in the nature of a necessary evil. With some crops and on some soils, however, pesticides have beneficial nutritional effects. Disease and insect control should be handled on a common sense basis. The tendency toward excessive spraying may mean fewer bushels of fruit per acre, perhaps serious damage to the crop. A proper spray program makes use of the minimum number of applications of pesticides for control of such diseases and insects as may be present or threaten. Only careful, daily observation by the grower can properly decide the need for pesticides. A minimum protective schedule, with increased frequency only if pests or diseases appear, is safer than too frequent spraying.

* * *

Why throw money away? Make the woodlands produce annual timber crops.

Florida Farmers Try Kenland Red Clover

KENLAND red clover is being tried on several hundred acres by Florida farmers this season, according to Dr. Gordon B. Killinger agronomist with the University of Florida Agricultural Experiment Stations.

In trial plantings which began in 1943 the Experiment Stations have found that Kenland clover is superior to other red clovers, has a longer growing season than White Dutch and Crimson clover, and makes satisfactory growth on soils which are too dry for other clovers.

Plantings of Kenland at the Range Cattle Station, Ona, Main Experiment Station here, North Florida Station, Quincy, West Florida Station, Jay, and at several other points in the state have turned out satisfactory, Dr. Killinger reported.

The new variety, developed by the Kentucky Agricultural Experiment Station and U. S. Department of Agriculture, requires the same inoculation as White Dutch and, with proper fertlization, does best on wet to moderately drained soils. It may be planted on closely grazed grass sod or prepared seedbed, allowing from 10 to 12 pounds of seed per acre. The Experiment Station agronomist recommended application of one ton of limestone per acre before planting and a similar application every fifth year, and application of 500 to 600 pounds of 0-10-10 or 0-14-10 fertilizer per acre before planting and repeating this fertilizer application as a top-dressing annually thereafter.

While no beef gains have been recorded thus far, Experiment Station plantings have produced more than four tons of high quality hay per acre annually. With a sufficient number of bees and other pollinating insects present, the plantings have produced seed very satisfactorily. Grass growth has been vigorous after the end of the clover season. The only unfavorable development with Kenland thus far has been the development of mildew at certain periods during the year, but the disease has not killed the plants nor injured stock grazing them, Dr. Killinger said.

* * *

A Combine Harvester To Gather Peanuts

DEVELOPMENT of a workable, two-man, experimental peanut combine harvester that will do the laborious job of gathering peanuts from the fields in a fraction of the time now required by conventional methods, is announced by the U. S. Department of Agriculture. Although this does not mean that such a machine will soon be available to farmers, agricultural engineers of the Department consider it a step toward sound havvesting principles that eventually may be incorporated into manufacturers' designs for production in quantity.

A cylinder-type combine, it can dig, clean, vine, stem and bag an acre of peanuts in an hour. It cuts out tedious stacking—a job that takes 30 to 35 hours of man labor per acre. It will also handle windrowed peanuts, combining two acres an hour from a windrow of four rows.

Research on the harvester was done cooperatively by agricultural engineers of the University of Georgia, Georgia Coastal Plain Experiment Station and Bureau of Plant Industry, Soils and Agricultural Engineering. In field tests harvesting with this machine was not only faster, but also more efficient than with the common method of plowing them out, shaking by hand and stacking.

Engineers who developed the new combine believe that it may be an essential step toward lower cost peanuts—a step that would make them a more important crop in this country.

In use, the harvester is drawn by a two-plow tractor and harvests two rows of peanuts at a time. Digger blades mounted on the tractor cut the taproots of the peanuts.

The harvester pick-up unit lifts the plants from the soil by the tops, shakes out loose soil, raises and drops them on top of the first picking cylinder. The picking teeth of a second cylinder then take the vines and deposit them on the vine rack with the aid of a beater cylinder. The agitating vine rack shakes the peanuts from the vine as they move upward and to the rear of the machine. The peanuts fall through the vine rack onto the crimped sawtooth-type peanut pan which moves the nuts to the rear where they fall through an air blast of 2000 ft. per minute. The vines fall to the ground in a uniform windrow and the peanuts drift through three sets of stemmer saws, which remove the stems. The cleaned and stemmed peanuts are conveyed to the bagging elevator by an auger.

The freshly dug and picked nuts are dried in a mechanical drier to a moisture content right for market.

* * *

Insect Free

(Continued from Page 22)

wise from a monetary standpoint. For example, large sections of our finest recreational land are unusable because of the extreme annoyance from biting insects during vacation seasons.

Indalone, dimethyl, phthalate, and Rutgers 612 may be used for protection against "chiggers" or red-bugs. However, dimethyl phthalate is the preferred repellent to use against mites because of its effectiveness and low cost. It has also been shown that this material acts as a toxicant rather than a repellent when used against chiggers. At present repellents can only be considered as another means of finding some relief from insect pests. What the future may bring remains to be seen.

* * *

Specially prepared wax emulsions, used at double the recommended strengths, have proved satisfactory for preserving evergreens and other plants after cutting. Double strength of these preparations is required because of dry winter weather in Florida.

* * *

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Feed The Family Cow Right

You Can Increase Your Milk Production

By C. W. REAVES
Dairyman, Florida Agricultural Extension Service

A cow that is not kept in a healthy condition cannot produce heavily over a period of time. We have all seen herds of cows in such poor flesh that it is obvious they are producing very little milk. Perhaps this condition is more true in cases of family milk cows than in dairy herds. Most dairymen have learned that there is no place for a "starving period" in a profitable dairy operation. The commercial dairyman is usually rather quick to find and eliminate those practices that obviously decrease his production and profit.

Unfortunately, many family cow owners do not give as much thought as they should to the needs of the animal that furnishes the milk for the family. If the cow goes down in milk, this is accepted as a necessary situation instead of trying to find ways to change it. Many family cows are standing dry all winter. This means less milk or no milk for many farm families during the winter. In other words, the poor ration that let the cow go dry is responsible for a poor diet for the farm family.

Milk is the most nearly perfect human food. The cow cannot produce milk unless she has received all the nutrients to make it. This is called a balanced ration. Since milk is high in protein and mineral, the dairy cow's ration must contain these nutrients in sufficient quantities. Also, protein, minerals, and vitamins are necessary to support the vital processes of the cow's body to maintain it in a good healthful condition.

Feeding cows for health and high production involves feeding enough, that is—a full ration. The cow's ration should contain the right nutrients. Poor cows and poor production may result from the lack of small amounts of certain minerals or vitamins as well as from general scanty feeding. For example, the complete absence of cobalt will result in a cow starving to death in a barn full of feed. Without any cobalt, she loses her appetite, her coat of hair becomes dry and harsh, and she loses weight and becomes emaciated. A few milligrams of cobalt sulfate is the difference, an amount almost too small to see. If put on feed, cobalt must be dissolved in water and sprayed on to get it properly mixed. However, it can be purchased already mixed in a mineral mixture known as the salt sick mixture. The mixture should be kept before cows so they can have some at any time they want it.

In feeding milk cows, there should be some bulky feeds and enough concentrates to result in heavy milk production. The digestive system of the cow is such that roughage is necessary in the diet for normal functioning of the system. Some natural roughage is necessary for proper nutrition and health of the cow. Ample pasture and a small amount of concentrated feed are an ideal combination for maintaining good health and high production. White clover, crimson clover, rye grass or oats and rye prolong good grazing during the year. Sugar cane is a bulky, succulent winter feed that is good insurance against poor pasture. Cows may eat 30 to 40 pounds of sugar cane daily. They should have a small amount of dry hay, stover, or pasture along with the sugar cane to keep their digestive systems in good shape.

Sugar cane is low in protein. Concentrated feeds should be thought of as supplying those things not furnished by the pasture or roughage. If low protein roughage is fed, an 18 or 20 percent protein concentrate feed mixture should be used; if legume hay or fresh pasture is available, a 12 to 14 percent concentrate mixture is adequate. It may be bought as a mixed dairy feed or mixed at home. It would be provided by a mixture of 200 pounds of ground corn, 200 pounds of citrus pulp, 100 pounds of wheat bran, and 100 pounds of cottonseed meal. That is a very good ration, if minerals also are provided.

The minerals recommended by the Florida Agricultural Experiment Station are loose salt in one box, steamed bone meal in the second section of box,

(Continued on Page 31)

This unusual photograph was made during early morning last December at Nagel Groves, near Winter Haven. The fires raised the grove temperature seven degrees and no damage was done to the fruit by cold, but Robert Leahey, St. Petersburg photographer, got a bit chilly.

You Can Spot Lawn Insects

Expert Tells How to Find 'em and Kill 'em

By E. G. KELSHEIMER
Entomologist, Florida Agricultural Experiment Stations

A BEAUTIFUL green lawn is a pride and joy to every home owner and much effort and money are spent every year to maintain a nice lawn setting for the home. Constant care is needed to keep the lawn in good condition. Fortunately, stoloniferous grasses, such as St. Augustine, centipede and Bermuda, are not subject to attacks by large numbers of insects, but they do have their insect enemies which must be guarded against and controlled.

CHINCH BUG

The chinch bug is the most common and prevalent insect in St. Augustine lawns, occurring infrequently on centipede and rarely on Bermuda. These are sucking insects and injure or kill a plant by sucking the juices from it. The first indication that chinch bugs are present in the lawn is the observance of a dead spot with a yellowish area surrounding it.

FALSE CHINCH BUG

The false chinch bug is commonly mistaken for the chinch bug. The adult is gray or black and the young are greenish gray instead of red and brown with the white band across the back. The pest, prevalent in Florida, is common east of the Rocky Mountains.

SOD WEBWORM

Larvae of the sod webworm produce considerable injury before their presence is noted because they work mainly at night or during the daytime by remaining under bits of refuse. First signs of injury are areas of closely cropped grass resulting from the feeding of the larvae. Close examination of the lawns will show evidence of frass (insect excrete) and webs between the grass stems.

FALL ARMYWORM

The fall armyworm is a destructive pest of lawns. Damage to lawns may first appear as a small burned out area, examination of which will disclose numerous larvae. With heavy infestation the tips of the grass blade appear to be ragged and transparent, later turning brown, as if the tips of the grass had been scorched by fire. The leaves of the grass are eaten by the larvae.

The presence of birds (grackles) on a lawn is a sure indication that fall armyworm and sod webworms are at work. Controls should start at once.

LEAFHOPPERS

There are many species of leafhoppers that infest lawns. Generally unnoticed because their damage is not spectacular like that caused by the chinch bug and the chewing insects, nevertheless, they rank as one of the more important pests of lawns. The presence of leafhoppers is often indicated by the flight of dragonflies (mosquito hawks) over a lawn that is being mowed or treated with an insecticide. These dragon flies feed upon leafhoppers. Leafhoppers are sucking insects and when extremely numerous their damage shows up as whitened patches on the lawn. They may be prevalent on Burmuda grass lawns.

GRUBS

Many species of grubs (the larvae of beetles) infest the lawn. A common one is the larvae of the Rhinoceres beetle.

Burrowing of moles and the digging of skunks in the lawns often indicates the presence of grubs, as these animals feed extensively on grubs. Another striking indication of the presence of white grubs is the appearance of brown dead spots of grass that can be rolled up like a carpet. The grubs feeding on the roots have destroyed these portions of the lawn. If holes about an inch in diameter and surrounded by a pile of sand are found in lawns during the fall, indications are that an adult female rhinocerous beetle is below the surface laying eggs.

MOLE-CRICKETS

There are two species of mole-crickets that may occur in lawns. Their damage is more noticeable in short mown grass and freshly set lawns than in established lawns. Damage results from the loosening of the soil and disturbing of the roots.

Other lawn pests which harm Florida lawns are snails, moles and skunks.

CONTROL OF INSECT

Many insects, both sucking and chewing, may be controlled by the use of three or five per cent DDT dust applied at the rate of 30 pounds per area with a crank duster. Where isolated areas are infested, a puff duster may serve the purpose. Treat the infested area and several feet of the surrounding area.

If spraying is preferred, use two pounds of 50 per cent wettable DDT powder in 100 gallons of water and apply at the rate of 100 gallons per acre.

(Continued on Page 31)

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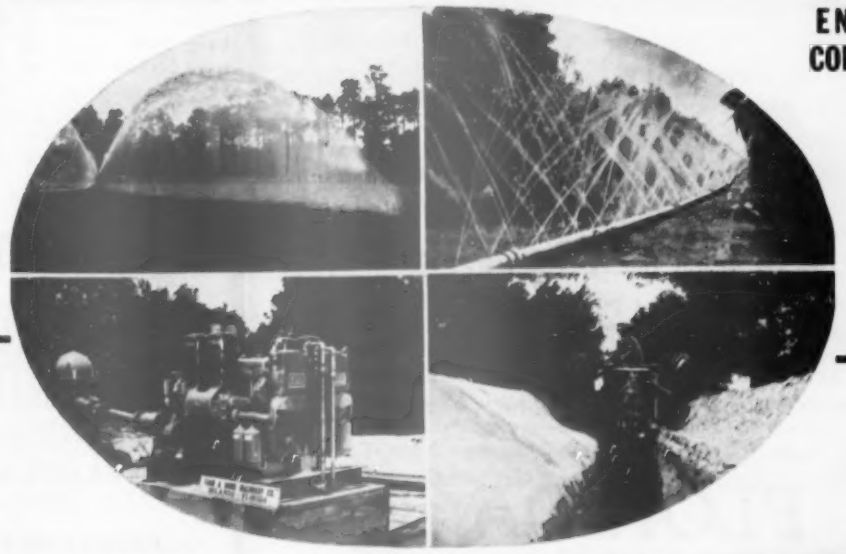

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A Way to Prevent Woods Fires

Costs So Little Yet Saves So Much

By L. T. NIELAND
Forester, Florida Agricultural Extension Service

DOES YOUR farm woods have a full stand of trees, say about 200 trees of log size, or 600 saplings, per acre? Do you have all the trees you need to take care of farm requirements for first class lumber, fence posts, or fire wood? And, can you sell $2.50 worth, or more of forest products per acre every year in addition to supplying home needs for wood? If not, then your timber crop isn't doing so well.

It may be that you need more trees. If woods fires have burned over the land recently, you are almost sure to have too many open spots in your woods where trees should grow. If fires are kept out, nature will fill in these open spots with a new crop of saplings in time—but the quickest way to get a new forest is by planting yearling pine seedlings.

Now is the season of fewer rains, when the woods are dry enough to burn. It is the time when the forest landowner worries about woods fires. And well he may worry. Many people are still all too careless with fire. To the farmer with a stand of young planted pines, or a fine catch of little seedlings in the rough wire grass, a woods fire may be more damaging than a scourging blight in his cultivated fields. Many years may pass before the trees, lost in a single fire, can be replaced.

Woods fires can be prevented. In our travels throughout Florida, we often see beautiful young pine plantings just coming through tall, dead broom sedge, or other inflammable vegetation. In too many cases a protecting fire break has not been plowed around the trees. Such a planting may be worth hundreds of dollars, yet a fire could wipe it out in a few minutes. In other cases a farmer may have an older stand of very valuable timber. Thousands of thrifty saplings have come in to fill out the open spots because fires have been kept out. The accumulation of dead grass and litter is, of course, heavy. Yet such a woodland often has no protective fire barrier around it. A careless person might drop a match even a quarter of a mile away, and, during a dry time and strong wind, wild fire could race in from the outside and destroy most of the trees.

Such fires can be prevented by plowing, or disking wide lines around the timber stands. This is a good fire insurance, and costs little. The time for plowing such fire lines is now.

A good way to safeguard your trees is to disk up a strip, 60 or 100 feet wide around your timber tract, and then sod down this strip to carpet grass, or some other good improved pasture grass. The cows will keep this better grass cropped short, so that fires cannot cross it.

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Disease, Starvation Top Swine Losses

FARMERS who raise hogs are urged by the University of Florida Agricultural Extension Service to provide adequate winter feed and to follow practices for disease control so they will realize maximum returns from their herds.

Dr. Oliver F. Goen, Extension Service animal husbandman, pointed out that many hogs are lost each year because of inadequate feed and failure to take necessary steps to protect them from diseases and parasites.

"Many pigs starve or are badly stunted from starvation every year," he said. "Winter grazing crops, such as oats and rye and supplemental feed will prevent such losses. Pigs that are badly stunted are partial losses, because they do not maintain the size and finish they could have with adequate feed, and, of course, pigs that starve are total losses."

While every farmer knows cholera can destroy a whole herd in a few days, Dr. Goen explained, some farmers still take chances and fail to have their pigs immunized at an early age. "If a farmer loses just one hog to cholera, his return from his livestock enterprise is reduced that much, and usually, when this disease strikes a herd, more than one pig is lost, the Extension worker said.

Swine erysipelas, although seldom diagnosed as such, also takes a toll of hogs in Florida. "When a farmer loses a hog, he shouldn't conclude that cholera killed the animal, but he should have a veterinarian make an accurate diagnosis and take prompt measures to control whatever the disease might be. If erysipelas is the trouble, the disease can be controlled by prompt vaccination and quarantine measures," he averred.

Parasites, external and internal, also cause heavy losses every year, the Extension specialist pointed out. Hog lice are one of worst external pests, causing hogs to lose weight and sometimes transmitting swine pox from sick to healthy animals. Spraying hogs with one-half per cent solution of chlordane in water will control lice.

Eliminating mud-holes and plowing the land around feeding and watering troughs and farrowing pens will do much to control intersite eggs to sunlight usually destroys them.

When a farmer suspects his pigs of being infested with internal parasites, he should have a veterinarian examine them and begin remedial measures promptly if infestation is found.

"Good nutrition, sanitation, and preventive measures against disease are the most important factors in raising healthy hogs," Dr. Goen said. "And only healthy pigs will provide maximum returns from a livestock enterprise."

* * *

Family Cow

(Continued from Page 28)

and the salt sick mineral in the third section. Each can be purchased in most feed stores. Mineral mixtures made in Northern states frequently do not have some minerals needed by Florida cows, especially the salt sick mixture. This mixture, sometimes called the Florida Experiment Station of "F.E.S." mineral, contains red oxide of iron, copper sulfate, and cobalt sulfate. In addition, it has some salt so cows will eat it.

Bone meal for the cow makes it unnecessary for her to chew old bones to get calcium and phosphorus. Old bones sometimes cause botulism and lack of phosphorus and calcium often results in a stiffness commonly called "creeps" or "stiffs".

For good milk production from healthy cows, plan for summer and winter pasture, have sugar cane or some other forage for winter feed insurance, and grow some hay if possible when pasture is not available. Feed at least four to six pounds hay daily, feed citrus pulp but not over six to eight pounds daily, and feed enough high protein feed mixture to make up for shortcomings of the remainder of ration. Cows fed in this way are sure to be in good condition, are profitable in a dairy, or look good around the farm as a source of healthful milk.

* * *

Lawn Insects

(Continued from Page 29)

The fall armyworm is an exception in that DDT is not effective after the worm reaches a certain size (3rd instar). Chlordane is more widely used. Chlordane is sold as a wettable powder and may be applied as a spray at the rate of 100 gallons per acre of two pounds of 50 per cent material to 100 gallons of water. If it is to be applied as a dust, use chlordane as a 5 per cent dust.

DDT should be applied under dry conditions as nearly as possible. Chlordane should be applied before a shower —or at least resort to artificial water —to secure maximum results.

Chlordane also controls mole-crickets, one-fourth pint of a 50 per cent emulsion mixed with 100 gallons of water being satisfactory. It, too, is applied with a sprinkling can, 1 gallon to 10 square feet of area. This will also control snails.

Rhinoceros beetles can be killed by dropping a teaspoonful of 5 per cent chlordane down the holes where they are working and then sealing the holes with a press of the heel.

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LYCHEE NEWS

The Florida Lychee growing industry continues to progress steadily toward a position of major importance in the state's agricultural picture.

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Most popular as a fresh fruit, the Lychee also may be fresh frozen, dried or canned.

South Florida is one of the very few sections of the world where the Lychee fruits well. Trees here come into bearing at the early age of from 4 to 6 years. Under proper conditions they will increase fruit production an average of 20 pounds per year.

Although few trees in Florida have yet reached 20 years of age, the Lychee in China attains great age—trees from 300 to 1,000 years of age said to be still fruiting. Heaviest production is from 50 to 100 years.

Air-layered trees grow faster than citrus after the fourth year; are considered equally hardy when mature. They are generally planted 50 to the acre on soil of same type as that suitable for citrus.

Production of Florida will be limited, due to fact that much of the suitable land is already planted to citrus. *Largest orchard planting in Florida in 1950 was 160 acres.*

Investigate the Lychee, now!

For further information, write or visit

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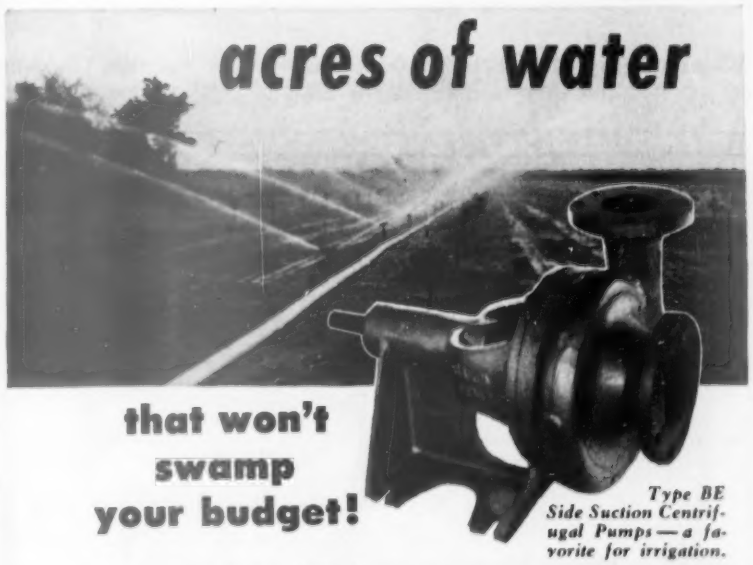

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New Vegetables

(Continued from Page 21)

ieties should be avoided. The following yellows-resistant varieties are available for planting on diseased soils: Resistant Detroit (Early), Marion Market, Resistant Copenhagen Market (medium early) and Resistant Glory of Enkhuizen.

CAULIFLOWER

Holland Erfurt and Snowball X or Snowdrift are the varieties most commonly grown. A new variety Snowball Y is recommended for trial. Though several days later than the above, its upright non-spreading type of foliage protects curds until nearly grown. It is recommended for limited trials.

BROCCOLI

Three new varieties are recommended for trial when seed becomes available: Freezers, Midway and Texas 107. Texas 107 produced almost double the yield of others in trials. A light yellow tinge on buds is objectionable.

LETTUCE

Great Lakes and Imperial 44 are still the standard varieties.

CUCUMBERS

Marketer (Early Green Market) is a widely adaptable variety and is considered the standard by growers and buyers in most sections. A new South Carolina variety named "Santee" has yield capacity superior to Marketer and fruits of good color with a slight flecking which is not serious. This line is not as resistant to downy mildew as Palmetto; both have a tendency to form hollow spaces inside of fruit.

Marketer (Early Green Market) is a Santee are recommended for limited trial, and Palmetto for planting when spraying and dusting equipment is inadequate and control of downy mildew is a problem.

EGG PLANT

Two new varieties, Florida Market and Florida Beauty recently introduced by the Florida Experiment Station, are resistant to all phases of the disease known as Phomopsis and Tipover. Though still segregating for fruit color and type, these varieties are recommended for all egplant-growing sections. Florida Market seems to be preferred where it has beentried. Yield capacities of these varieties in commercial plantings have been excellent.

ONIONS

Interest in onions is being revived as a result of availability of drying equipment which might be used in the curing of onions. Two varieties which have performed well under most Florida conditions are Early Grano and Excell.

* * *

Florida Peanut Quota Is Cut

PEANUTS, almost 60 million pounds of them, were grown and threshed in Florida in 1950, the Florida State Chamber of Commerce reported.

Florida's 59,040,000 pound peanut crop last year is reported as 13 per cent above the 1949 crop but 7 per cent below the annual average of the years 1939 through 1948.

Last year 72,000 acres on Florida farms were planted to peanuts for threshing. Per acre production was 820 pounds, 7 per cent above the per acre production in 1949 and 30 per cent above the ten-year average.

New acreage quotas recently set will confine peanut acreage for threshing to a little more than 61,000 acres for each of the next three years.

Florida's threshed peanut crop is used practically in its entirety for human consumption in the usual forms and including canned boiled nuts.

Quota restrictions do not apply to peanuts unsold, that is, raised for use on farms. In 1950, total plantings for this purpose amounted to 190,000 acres and were used principally as hog and other livestock feed. Production on this acreage is not included in the 60 million pound threshed crop.

* * *

TO FIGHT DISEASE

Florida Agricultural Experiment Station plant pathologists, corn breeders and horticulturists met at the Vegetable Crops Laboratory near Bradenton recently to discuss means of combatting Helminthosporium leaf blight disease, which is menacing corn crops. It has become severe enough to cause complete crop failure in some instances.

They agreed to attack from two angles—the application of fungicides and the breeding of resistant strains of corn. Some fungicides have shown promise in preliminary tests.

* * *

Plant a winter cover crop on land from which peanuts have been dug.

* * *

Fire destroys and injures mature timber as well as seedlings.

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Conserving Soil and Water

By HOWARD R. BISSLAND
United States Soil Conservation Service

"Red" Hilton Gets A Good Soil Plan

FARMERS and ranchers sometimes ask us just what a Soil Conservation Farm Plan is and just what it includes. Probably the best way to explain it is to give an example.

L. A. "Red" Hilton, recently became the owner of a 356-acre farm across the road from his father's farm in the Baker Community near Crestview. "Red" wanted to use his land to the best advantage and conserve his soil at the same time, so he called on

Hilton had to contend with such soil problems as this gully—no small problem for anyone.

Soil Conservationist R. L. O'Barr. First, O'Barr had a soil conservation survey made of Hilton's new farm.

Briefly, a soil conservation survey is more than just a test of the soil. It is more like an inventory of the land. It includes many factors. When completed, it shows slopes, the type and depth of the topsoil and subsoil, and the amount of soil washed away. The conservation survey also shows relative fertility, available moisture, and relative acidity. Soil Conservation surveys are always made by specially trained men who are experienced in the soils of Florida. Based on the conservation survey, a land use capability map is prepared. This is simply a classification of the land, acre by acre, according to its capability to produce crops.

Hilton told Russell O'Barr that he wanted to raise livestock. Because of this he was interested in using his land mainly for pasture and feed crops. Keeping this point in mind, he and O'Barr worked up a soil and water conservation plan for each acre of land based on the information shown on the soil survey and land use capability map.

One of the services a cooperating farmer gets when he works out a long range soil and water conservation plan on his farm with the Soil Conservation Service technician is specific recommendations regarding the best plants for each different soil class on his farm.

With O'Barr's help, Red Hilton not only made up a good plan, but he started immediately to put the plan on the ground. Through the Soil Conservation District, Hilton rented heavy equipment, moved it onto his farm, and started moving dirt for a farm pond.

Red's plan was written just a few months ago. Already 76 acres have been planted to Pensacola Bahia grass and Common Lespedeza. A 2-acre pond for stock water and fish production has been constructed. He is now preparing a strip, 30 feet wide, around his woodland. This strip will be planted to Partridge Pea and Lespedeza to provide food for birds and serve as a fire break.

Red Hilton has made such progress on his Farm Plan that it won't be long before he has a complete soil and water conservation program in operation.

To sum up, here's what you get with a Soil Conservation Farm Plan:

1. A soil conservation survey to determine your land capability.
2. A plan of use for each acre of land.
3. Technical assistance in starting new practices; engineering assistance in laying out terrace lines, contours for groves and water control; new soil conserving plants and seed as developed by SCS nurseries.
4. Year to year follow-up assistance from your Soil Conservation District.

In addition cooperators with Soil Conservation Districts get assistance with wind erosion control practices, range management, game and fish management, construction of artificial ponds and development of natural ponds, and irrigation and drainage systems are designed as needed.

Here's the kind of pasture Hilton's neighbor, Dr. O. O. Enzor, got with the proper fertilizing, liming, and seeding in cooperation with a mobile unit of Florida Experiment Station. Which do you like—this one, or the cover?

* * *

$501,270 ORDER

The United States government bought $501,270 worth of grapefruit sections from Florida canners for the government's school lunch program. Florida canners have endeavored to get the government to buy grapefruit sections for several years but this is the first purchase to date. The order was reported split between four Florida canners.

* * *

Prior to 1882, the celebration of Arbor Day had been sponsored by agricultural associations and town officials.

* * *

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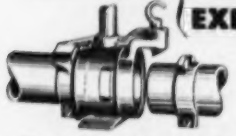

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Vegetable	A good variety	Seeds or plants per 100 feet of row	Distance between plants	Distance between rows	Depth of planting	Time to plant	Days to maturity
Lima Beans (pole)	Early Leviathan	½ pt.	14-18 in.	2-3 ft.	½ in.	N—Mar.-June C—Feb.-Apr. S—Sept.-Apr.	45-70
Lima Beans (bush)	Ford Hook	½ pt.	8-14 in.	2-3 ft.	½ in.	N—Mar.-June C—Feb.-Apr. S—Sept.-Apr.	45-70
Green Beans (snap)	Burpee Stringless Greenpod	1 pt.	8-14 in.	2-2½ ft.	½ in.	N—Mar., Apr., Aug., Sept. C—Feb., Mar., Sept. S—Sept.-Apr.	45-60
Green Beans (wax)	Wardell	1 pt.	8-14 in.	2-2½ ft.	½ in.	N—Mar., Apr., Aug., Sept. C—Feb., Mar., Sept. S—Sept.-Apr.	45-60
Green Beans (pole)	Kentucky Wanderer	½ pt.	14-18 in.	3 ft.	½ in.	N—Mar.-June C—Feb.-Apr. S—Jan., Feb.	45-75
Beets	Eclipse	2 oz.	3-4 in.	2 ft.	¾ in.	N—Feb., Mar., Sept.-Nov. C—Jan.-Mar., Sept.-Nov. S—Jan.-Mar., Sept.-Nov.	50-70
Broccoli	Italian Green Sprouting	4 oz. per acre	15-18 in.	3-4 ft.	¾ in.	N—Aug., Feb. C—Aug., Jan. S—Sept.-Jan.	120-150
Cabbage	Charleston Wakefield	½ oz. 65-90 plants	15-18 in.	2-2½ ft.	1 in.	N—Jan.-Mar., Sept.-Nov. C—Sept.-Jan. S—Sept.-Dec.	80-100
Cauliflower	Early Snowball	⅛ oz. 60-75 plants	20 in.	2-2½ ft.	½ in.	N—Jan., Feb., Aug.-Oct. C—Jan., Feb., Aug.-Oct. S—Jan., Feb., Sept., Oct.	100-130
Carrots	Chanteney	1 oz.	¾ in.	1½ ft.	½ in.	N—Feb., Mar., Sept.-Nov. C—Jan.-Mar., Sept., Oct. S—Jan.-Mar., Sept.-Nov.	75-110
Collards		¼ oz. 65-100 plants	18-24 in.	18-24 in.	½ in.	N—Feb., Mar., Sept.-Nov. C—Jan.-Apr., Aug.-Nov. S—Sept.-Nov.	100-120
Sweet Corn	Suwannee Sugar	¼ pt. 3 or 4 grains per hill	Hills 12 in. apart	3 ft.	2 in.	N—Mar., Apr. C—Feb., Mar. S—Jan.-Mar.	60-100
Roasting Ears	Snow Flake	¼ pt. 3 or 4 grains per hill	18 in. between hills	3 ft.	2 in.	Same as Sweet Corn	60-100
Cucumbers	Clark's Special	6 seeds per hill; thin to 3 or 4 per hill	Hills 2-3 ft. apart	4-6 ft.	¾ in.	N—Feb.-Apr. C—Feb., Mar., Sept. S—Jan., Feb.	50-60
Eggplant	Florida Highbush	¼ oz. 50-70 plants	3 ft.	4-5 ft.	½ in.	N—Feb., Mar. C—Jan., Feb., July S—Dec.-Feb., Aug., Sept.	100-140
Endive Escarole	White Curled Broad-leaved Batavia	½ oz. 100 plants	8-9 in.	15-18 in.	¼-½ in.	N—Feb., Mar., Sept. C—Jan., Feb., Sept. S—Sept.-Jan.	90-180
Lettuce Romaine	White Boston Paris White Cos	1 plant to each square or ½ oz. seed per row	12-15 in.	12-15 in.	¼ in.	N—Feb., Mar., Sept. S—Sept.-Jan.	60-90
Muskmelons Cantaloupes	Old Georgia Rocky Ford	6 seeds per hill; thin to 1 or 2 plants	Hills 3-4 ft. apart	6 ft.	1-1½ in.	N—Mar., Apr. C—Feb.-Apr. S—Feb., Mar.	120-150
Okra	Perkins Mammoth Podded	2 oz.	10-12 in.	2½-3 ft.	¾-1 in.	N—Mar.-Apr., Aug. C—Mar.-May., Aug. S—Feb., Mar., Aug., Sept.	45
Onions (seed)	Crystal Wax	1 oz.	3-4 in.	12-18 in.	¼-½ in.	N—Jan.-Mar., Aug.-Nov. C—Jan.-Mar., Aug.-Nov. S—Jan.-Mar., Sept.-Dec.	130-150
Onions (sets)	Australian Brown	1 qt. sets	3-4 in.	12-18 in.	½ in.		90-120
Parsley	Common	¼ oz.	3-4 in.	15 in.	⅛ in.	N—Feb. C—Dec., Jan. S—Sept.-Jan.	90-120
English Peas (single rows)	Alaska Extra Early	½ pts.	1 in.	3 ft.	2 in.	N—Jan., Feb. C—Sept.-Mar. S—Sept.-Feb.	40-80
English Peas (double rows)	Alaska Extra Early	½ pts.	1 in.	4 ft.	2 in.		40-80
Peppers sweet pimientos chili hot	Ruby King Perfection Mexican Anaheim	⅛ oz. 50 plants	20 in.	3 ft.	½ in.	N—Feb.-Apr. C—Jan.-Mar. S—Jan., Feb., Aug.-Oct.	100-140
Potatoes (Irish)	Spaulding Rose No. 4	1 seedpiece per hill	Hills 12-15 in. apart	2-4 ft.	2½-6 in.	N—Jan., Feb. C—Jan. S—Sept.-Mar.	80-140
Potatoes (Sweet)	Porto Rico	1 slip or cutting per hill	14-18 in.	3-4 ft.	2-3 in.	N—Apr.-June C—Mar.-July S—Feb.-June	140-160
Radishes	Long Scarlet	1 oz. thin when 4 in. high	1-4 in.	2-15 in.	½-1 in.	N—Oct.-Mar. C—Oct.-Mar. S—Oct.-Mar.	30
Spinach	Bloomdale	1 oz.	Thin to 1 plant every 6 in.	2-3 ft.	1 in.	N—Mar., Apr. C—Mar., Apr. S—Jan.-Apr.	30-60
Squash and Pumpkins (early)	White Bush	4-5 seeds per hill; thin to 3 plants	4 ft.	8 ft.	½ in.	N—Mar., Apr. C—Feb., Mar. S—Jan.-Mar.	45-60
Squash and Pumpkins (late)	Hubbard	4-5 seeds per hill; thin to 3 plants	6 ft.	4 ft.	½ in.	N—Aug. C—Aug. S—Sept., Oct.	120-160
Strawberries (single row)	Brandywine	1 plant every 14 in.	14 in.	30-36 in.	cover roots, leave bud and crown exposed	N. Fla.: Runners set out during Aug. and Sept. C. Fla.: About one mo. later.	80-100
Tomatoes	Marglobe	⅛ oz. 35-50 plants	20-30 in.	3½-5 ft.	½-1 in. seedbed	N—Feb.-Aug. C—Feb.-Sept. S—Aug.-Mar.	100-140
Turnips	Early Flat Dutch	½ oz.	5-6 in.	14-16 in.	¼-½ in.	N—Jan.-Apr., Aug.-Oct. C—Jan.-Mar., Sept.-Nov. S—Oct., Feb.	60-80
Mustard	Giant Curled	½ oz.	5-6 in.	14-16 in.	¼-½ in.	N—Jan.-Mar., Sept.-Nov. C—Jan.-Mar., Sept.-Nov. S—Sept.-Mar.	60-80
Rutabagas	Purple Top	½ oz.	5-6 in.	3 ft.	¼-½ in.		
Watermelons	Tom Watson	6 or more seeds per hill; thin to 2 or 3 per hill	Watermelons are usually planted in checks 8 x 8, 10 x 10 or 10 x 12 feet. One hill is planted in each check.		2 in.	N—Mar., Apr. C—Jan.-Apr. S—Feb., Mar.	100-120

Compiled from State Dept. of Agriculture Bulletin No. 52, July, 1950.

Dear Sir,

Where does the State of Florida stand in cattle raising. Texas is first —who is second. If you can give me the 10 largest cattle raising states according to states, that is, first, second, and so forth I would appreciate it very much.

Thank you very much,

Mark Samuels
1600 N. Shore Dr.
St. Petersburg, Fla.

Florida ranks 12th as a beef cattle state, 24th as a dairy cattle state, 26th in hogs and pigs, 40th in sheep and lambs, 41st in horses and colts, and 13th in mules and colts. These rankings are according to the total number of head. Source: Bureau of Agricultural Economics of the United States Department of Agriculture.

The first 10 ranking cattle states are:

	DAIRY	BEEF
1.	Texas	Texas
2.	Iowa	Iowa
3.	Nebraska	Nebraska
4.	Wisconsin	Kansas
5.	Kansas	South Dakota
6.	Minnesota	Missouri
7.	Illinois	Illinois
8.	Missouri	Oklahoma
9.	California	Montana
10.	Oklahoma	Colorado

AN OLD TIMER

Editor:

I regret to state that I will not renew my subscription to your valuable magazine which I have been receiving since March 1921.

The reason for this action is that I have lost my eyesight since Dec. 26, 1949. For the past two and one half years I have been sending the GROWER to a friend in Ohio with the result that he is coming to Lakeland this winter to buy a home here. I thought I would write to you with the above information so you would not continue the expense of soliciting my renewal.

You have a great magazine and I wish you continued success.

Yours truly,
William E. Rome
732 Winfree Ave.
Lakeland, Fla
(Per Mrs. W. E. R.)

INFRA-RED HEATERS

Dear Sir:

Please send me more information about the 10-foot infra-red ray heaters as you describe in "Florida News of The Month" in the January FLORIDA GROWER.

You have a wonderful magazine. How about digging up some information on pineapple growing?

Sincerely,

Anthony L. Jacobs,
Rt. 1, Box 108
Orlando, Fla.

* * *

Treat Cotton Seed Before Planting

GOOD COTTON seed are not too plentiful this year, when a big crop of the staple is needed. Consequently, it is especially important to treat the seed before planting, according to Dr. Phares Decker, plant pathologist with the University of Florida Agricultural Experiment Station.

The station scientist advises farmers to treat their seed with a chemical compound with a jaw-breaking name —zinc trichlorophenate. Its efficiency has geen proved in eliminating cotton diseases originating with seed.

"Tests have shown zinc trichlorophenate to be a very good material for seed treatment," Dr. Decker says. "It is non-poisonous, and this should provide better seed treatment. Most treatment in Florida is done on the farm and farm helpers working with poisonous materials sometimes do poor jobs because of fear of poisonous disinfectants."

The station pathologist says zinc trichlorophenate may be obtained under trade names.

Tests were made in cooperation with the United States Department of Agriculture.

* * *

PIG PRODUCTION

Florida pig production in 1950 totaled 977,000 head, just one per cent below 1949. However, the figure was six per cent above the 10-year average. Indications are the number of sows to farrow in the Spring of 1951 will be 102,000, the same as farrowed in 1950.

* * *

"GOOD" WEATHER

Low temperatures this winter have decreased the population of the screw-worm fly—the common enemy of all Florida livestock, according to Dr. O. F. Goen, animal industrialist with the Florida Agricultural Extension Service. Consequently, next Summer's herds probably will have less infestation, Dr. Goen pointed out.

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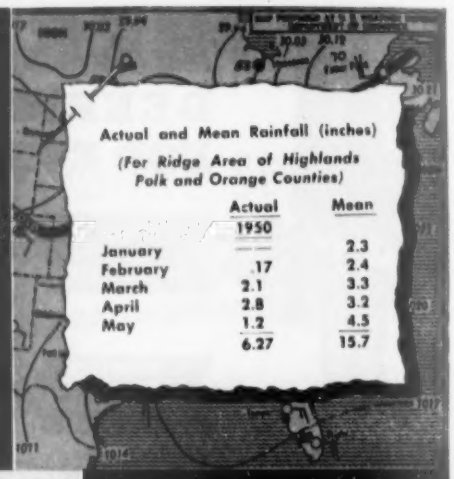

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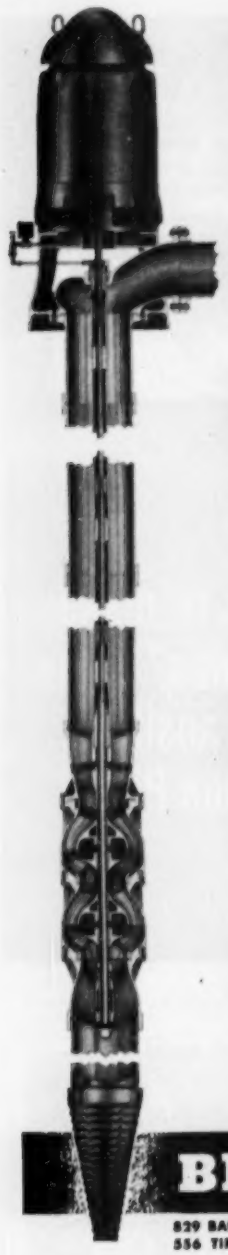

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Citrus Blackfly

(Continued from Page 11)

juices and concentrates would be more expensive.

The USDA Laboratory in Mexico City has tested numerous chemical controls for the blackfly, and has found one that is working quite satisfactorily. Mexican growers are using it to help keep the pest under control in their own groves and at the same time are lessening the danger of spread to the United States.

Oil emulsion, which has been used against whitefly and scale in this country for years, by itself doesn't do so well against blackfly. The State Plant Board used it to eradicate blackfly from Key West in 1934, but eradication required three years.

The Mexico City laboratory has tried DDT, parathion, chlordane, toxaphene, benzene hexachloride—all the new and potent insecticides — and many others. None has given complete satisfaction.

The chemical found most satisfactory and now generally used consists of 1.67 gallons of light medium emulsive or soluble oil containing 4.5 ounces of powdered cube or derris root with 5 per cent rotenone content per gallon of oil, and water to make 100 gallons. The oil is the same as that used in making emulsions for spraying scale or whitefly. Rotenone from cube or derris roots is the base of the old household sprays which knock the insects down on contact. The combination of oil and rotenone has turned the trick against blackfly.

Where they have wanted to eradicate new incipient infestations, as at Matamoros last year, laboratory workers have made four applications at approximately 30-day intervals. These have proven successful and sufficient.

The laboratory workers say that two thorough applications a year have brought infested trees back into good production. If the blackfly ever should become established in Florida, it might be possible to combine this oil-rotenone spray with other sprays being applied for other pests, and thus save expense of application.

But effective spraying probably would cost Florida growers 40 cents a tree, or $28 per acre per application, $56 a year for two applications. Anyway, that's what it costs the Mexican growers. Even though this would impose another burden on the harassed Florida grower—and the consumer—it is nice to know that an effective control measure is available if needed.

Biological control—getting beneficial insects or fungi to prey on the harmful insects—offers the best hope for reducing expensive control measures, if it will work. Fortunately, there are some insects which parasitize and kill the blackfly. One called *Eretmocerus serius* has been most effective in humid regions, but it did not thrive in semi-arid Mexico.

The USDA Laboratory in Mexico City has introduced a number of parasites to Mexico from the dry regions of India. One of these, *Prospaltella smithi*, a very small, wasp-like insect, now appears very promising. Two others have been established in several locations, but have not multiplied as much as is desired.

Many citrus growers in Mexico, while trying to prevent damage to their own trees by the citrus blackfly, are at the same time helping materially to keep this unwelcome and destructive insect from crossing the border and infesting groves on this side.

Two "committees," one with headquarters at Valles and the other at Veracruz, are extending organized assistance to growers. They are financed by taxes on gasoline, kerosene, diesel oil and other fuels and 10 centavos per citrus tree per year. The one at Valles has an increase approximating a million (U. S.) dollars a year, the one at Veracruz probably half that much.

Read the GROWER'S offer to help you protect your timber against
FOREST FIRES
On Page 30

But the story of grower cooperation in blackfly control begins before the committees were formed and includes growers from north of the border. In 1947 an organization of California - Arizona growers raised $25,000 and set up a program for combating the blackfly in the Guyamas-Empalme area, in cooperation with the Mexican government. Four large growers in the Guyamas area contributed 26,000 pesos (about $5,360 in U. S. currency) for insecticides.

In the fall of 1947 all citrus in the area was sprayed at least once, the town of Guyamas twice and Empalme three times. Blackfly numbers were reduced, groves regained some of their productivity, and the threat of the immediate northward spread of the insect was lessened.

In the fall of 1948, by proclamation of President Miguel Aleman, citrus growers in the states of San Luis Potois, Tamaulipas and Nuevo Leon organized a committee to conduct a control program in the three states. There is a similar committee at Veracruz for the state of Veracruz.

I visited Fernando Berlanga, executive director of the three-state committee at Valles, and talked with him. I understand that the Veracruz committee works along similar lines, but since my first-hand knowledge is limited to the Valles committee, I shall tell only about it and its work.

The Comite Regional del Noreste Para el Combate y Control de la Mosca prieta de los Citricos — when you hear its full name you don't wonder that it is referred to simply as "the committee." It consists of two

(Continued on Page 41)

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Best Chickens From Good Start

Seasonal Tips To Aid Home Poultry Flock Owners

By N. R. MEHRHOF
Poultry Husbandman

THE baby chick season is in full swing. Poultry raisers, whether they start with a few each year or brood thousands, have made plans or are making plans for another crop of broilers or this year's flock of pullets. Many are still wondering what kind of chicks to buy, and how to do a better job in raising them.

One of the first questions asked is, "What breed of chickens should I start with?" In general, the dual-purpose or egg breeds are used. Some of the popular dual-purpose breeds are New Hampshires, Rhode Island Reds, Plymouth Rocks, and Wyandottes. These are breeds, used to prouce eggs and poultry meat, that are very well adapted for the small flock owner. On the other hand, the White Leghorn is the popular egg breed and is more satisfactory for the large commercial egg producer. We find all of these dual-purpose breeds being raised in Florida at the present time, but the New Hampshire is the most popular.

In purchasing chicks, it is advisable to consider the quality. Try to get chicks that are free of pullorum disease and have been well bred. If they are for broilers, the chicks want to possess livability, fast rate of growth, and fast feathering. If they are for egg production, consider livability, egg production, and egg size. Don't consider the price first—consider quality. A few more cents for a chick will pay dividends. One other thing about the chicks. Get them as close at home as possible. Buy only healthy, well-bred chicks.

For many years, a poultry extension program to grow healthy chicks and pullets has been in operation in Florida. In this program six fundamental factors are included. All are important for success. Here they are:

Hatch early—before April 15th.
Start with clean eggs and chicks—pullorum clean.
Keep brooder houses clean—sweep, scrub and spray.
Use clean land—two or three-year rotation.
Feed a balanced ration containing all nutrients in proper proportion for normal growth.
And separate pullets from cockerels—as soon as sex can be determined.

Chicks started early in the spring seem to grow off faster, the broiler market is better, and the pullets come into production in the early fall when egg prices are on the rise. If you just want a few for home use, they can be started at almost any time, so you can have some broilers at different seasons of the year.

Temperature and comfortable quarters are necessary if you expect to do a good job. Several types of brooder houses have been suggested, but for the flock owner who plans to raise about fifty to seventy-five at a time, the lamp type brooder is most satisfactory. This little brooder is easily constructed, has a low operating cost, and does a nice job. The heat is supplied with a lamp or electric light bulbs. If the flock is larger, then a regular brooder house and stove should be used.

One of the points in the Grow Healthy Chick program is clean houses. The house should be thoroughly cleaned before the chicks arrive, and then kept clean all during the brooding and rearing period. Adopt a regular cleaning program, and in this program include the three "S's"—sweep, scrub, and spray.

We still find some small flock owners who use the hen as an incubator and brooder stove. If that is the case, make a convenient shelter for the hen, and be certain she is free of lice and mites before she is placed with chicks. The old hen is a pretty good brooder for a few chicks.

Sanitation is one of the most important factors for success with chickens. Sanitation means clean chicks, clean brooder houses, clean land, and clean feed. Most poultry raisers have found that rotation of yards helps to avoid soil contamination. Clean waterers, clean feeders, clean litter are all a part of sanitation. Adopt a regular cleaning program, so you can produce good broilers and pullets.

If you start with good chicks and provide suitable living quarters, the next job is to feed so as to obtain fast growth. There are many ways to feed baby chicks. One of the most common methods is to use an all-mash chick ration. This feed is placed in hoppers and left before the chicks at all times. These all-mash chick rations contain the nutrients which will result in good growth if the other factors listed are put into practice. Of course, keep a supply of clean, fresh water before the chicks. As the chicks grow many poultry raisers add some grain to the feeding program and then allow the birds to get out on range to eat succulent green feed.

The important point to keep in mind is to have a well-balanced feed for the chicks at all ages. Don't starve the chicks. Chickens up to broiler size will consume about 10 pounds of feed, and a pullet from day-old to maturity will consume about 25 to 30 pounds of feed.

The last item in the Grow Healthy Chick program is the separation of the cockerels and pullets. Confine the cockerels to a small area and fatten them. Give the pullets more clean range.

It is very important to feed so as to prevent waste. That means good non-wasting feed hoppers. Keep chickens out of the hoppers, fill the trough not more than one-half to two-thirds full; keep the rain out; and control the rat. Many backyard poultry raisers have been able to utilize table scraps to help reduce the feed bill.

As you start your chicks this year adopt six essential points in the Grow Healthy Chick program. See your county or home demonstration agent and ask for Extension Bulletin 126, *Poultry Houses and Equipment*, and 128, *Raising Chicks, Broilers and Pullets*.

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THERE'S something very familiar about the depleted look of hardware and electric fixture departments—about the way the sales people say: "No, I'm sorry but we don't have any more of that and I'm not sure whether we'll have another shipment"—about the slight apprehensive feeling you have when you go out to buy a necessary piece of equipment for housekeeping; maybe you'll be able to get it and maybe you won't.

Well, all right—suppose we are in for another period of domestic shortages. We managed once before and we can do it again.

There's nothing like adversity for developing your ingenuity. You can "make do" very attractively if you put your mind to it, you know.

Suppose the brass-and-glass side wall bracket you wanted for your dining room just isn't available. You can design a very attractive one from an antique cup and saucer—letting the cup shield the light globe, and the saucer, (stood upright behind it) serve as a reflector.

An old, worn out floor lamp can become a wonderful fern stand — if the wrought iron one you wanted isn't to be had. Paint the lamp stand white, suspend a bird cage (also painted white) from the arm which used to support an electric fixture, and put a pot of fern or ivy inside the cage where the canary used to be. Very fetching for a sun parlor or open porch.

No more metal trash baskets? Don't worry. Take the complete backs off two colorful books, open the books at right angles, saddle stitch them together so that they make a four sided wastebasket, and saddle stitch a heavy piece of cardboard for a bottom. Not as durable as metal, maybe, but personable,

The point is that it's fun to make something out of nothing—to reclaim objects from the junk heap and return them to useful life.

It's good that this reclamation can be fun, since we may be in for a lot of it.

If you have any bright reclamation ideas, send them to the FLORIDA GROWER so that they may be shared by other homemakers.

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BEST RECIPE of the MONTH

EDITORS NOTE

A new feature of the Best Recipe department in the FLORIDA GROWER is the testing laboratory which has been set up to make sure that recipes not only sound good, but *are* good.

The laboratory is not located in any one spot—but in kitchens all over the state. Florida home economists and housewives will cooperate in giving your prize-winning recipes a "dummy run" before they are published. In other words, before any recipe qualifies for publication, it will be tested by an expert cook, who may have amendments or suggestions to make.

We would like very much to have readers participate in this project. If any of you would like to venture into this field of experimental cookery, drop a card to the FLORIDA GROWER, and we will send you a recipe to be tested and returned to us within a few days. Credit, of course, will be given to the testers, when the recipes are printed.

Tester for both prize winners this first month of the new laboratory project was Miss Virginia Leslie, Brewster Vocational School home economist, who lives at 2115 Hills Ave., Tampa.

Professional experience is not requisite for testing, however; if you consider yourself talented in either plain or fancy cookery, let us hear from you.

HAM CASSEROLE

Top money in the Best Recipe contest goes this month to Mrs. Harvey H. Yancey of 407 South Melville Ave., Tampa, for her inspired method of using left-over ham or veal.

Pat Yancey is an Australian, married to a Tampa attorney, and it would be romantic to announce that she brought her prize-winning recipe from Australia with her. But, no—she had of it a friend in Washington. "Not surprising," Pat says. "Good food is prepared pretty much the same the world over."

Two talented cooks with a flair for food are Mrs. Harvey Yancey, (left) former Australian now living in Tampa, and Miss Virginia Leslie, Tampa home economist, who here preside over the making of a Ham Casserole, Mrs. Yancey's prize-winning recipe for using left-overs.

Here are the ingredients she lists:

- 1 pound ham or veal cubed
- 1 green pepper diced
- 1 small can pimientos diced
- 1 medium can creamed corn
- ½ pound grated New York State cheese (or any other cheese with a bite)
- 3 cups cooked rice
- 1 can cooked chopped mushrooms
- 1 can of chicken broth or chicken and rice soup

"When you've served a ham or a veal roast as originally cooked until it is popping out of your ears, this is a good method of using what's left," Mrs. Yancey says.

Her directions for preparing it are simple:

Brown the meat lightly and mix it, with all the other ingredients, in a casserole. Bake at a 350 degree temperature for 45 to 60 minutes, and serve with green peas and salads for a tempting, though balanced, diet.

* * *

DREAM BARS

Mrs. Jessie Adams, 555 37th St. South, St. Petersburg, Fla., takes second prize for February with her "Dream Bars."

Miss Virginia Leslie, Brewster Vocational School home economist who tested all the recipes for publication this month, says that the bars are "elegant," and that she often uses an almost identical recipe in her party cookery classes. She suggests that her students serve the bars with lobster sandwiches, tidbits and a fruit drink, as a complete party menu. Miss Leslie obligingly supplied the recipes for the sandwiches and the fruit drink—they are reprinted below Mrs. Adams' contribution, whose directions are supplied in two parts:

Part 1—

- ½ cup butter or margarine
- ½ cup brown sugar
- 1 cup flour

Blend to a crumbly mass and pat into a pan, being sure the bottom is covered. Bake in a moderate oven (375 degrees) for 10 minutes. Set aside to cool while preparing Part 2.

Part 2—

- 1 cup brown sugar
- 2 eggs
- 1 teaspoon vanilla
- 1 teaspoon baking powder
- 2 tablespoons flour
- 1½ cups coconut (not fresh)
- ½ teaspoon salt
- 1 cup chopped nuts (any kind)

Beat eggs, sugar and vanilla together. Mix flour, salt, and baking powder and sift over coconuts and nuts. Blend and add to egg mixture. Pour over Part 1, spread evenly and bake 20 minutes at 375 degrees. Cool and cut into slender bars.

Serve with:

LOBSTER SANDWICHES

Use 1 6-ounce can of lobster meat, from which the bone particles must be separated. To the flaked meat add ½ cup chopped stuffed olives. Moisten the mixture generously with approximately one cup of mayonnaise. Spread on sandwich bread cut to desired shape.

Meat Production Can Be Increased

FLORIDA FARMERS can increase production and improve the quality of meat animals this year by more extensive use of efficient practices developed by research, according to Dr. T. J. Cunha, head of the animal husbandry department of the University of Florida Agricultural Experiment Station.

The Experiment Station worker stressed the need for more general use of supplemental feed this winter in view of the poor condition of pastures as a result of unusually cold weather during the past two months. "Judicious use of cottonseed meal and other supplementary feeds," he explained, "will prevent heavy weight losses and will save the lives of some cows that otherwise would starve."

Protein supplements and minerals are necessary to keep stock in good condition in winter, and the cattleman will find it to his advantage to keep his animals thrifty and healthy.

Dr Cunha recommended wider use of purebred bulls and boars on native or grade stock to produce pigs and calves of good meat type that will develop maximum gains at minimum cost and bring satisfactory prices.

Farmers who have adequate sources of water near pastures might consider sprinkler irrigation in prolonged dry periods for keeping pastures growing and productive, Dr. Cunha said.

The Experiment Station scientist also emphasized sanitation for control of diseases and pests, planting temporary pastures, fertilizing established pastures, expansion of improved pastures, production of good hay and other feeds, and regular careful inspection of herds as measures the Florida farmer can use to produce more and better meat animals.

* * *

SHORT CUTS

Stick a bunch of cotton in the bottom of a very small tumbler and turn it over a salt cellar. You'll have free-running salt.—*Mrs. I. C. O., New Port Richey, Fla.*

* * *

We find a stepladder is much more useful when a wide board is nailed on the top step and a molding fence nailed around this board. The board and molding form a handy work table which will hold such things as screws, nails, tools, paint and cleaning pails. Keeping these objects within reach saves many a trip up and down the ladder.—*Mrs. J. C. B., Pinellas Park, Fla.*

* * *

To bake potatoes in half the usual time, drop them in boiling water and leave them there a few minutes, until thoroughly heated, before placing them in the oven.—*F. P., Shubert, Nebr.*

* * *

A little vinegar added to the water in which you wash your stockings will help increase the elasticity of the stocking threads, and tend to prevent runs. —*Mrs. C. K., Bensonville, Ill.*

* * *

When you want to boil water in a hurry, use two pans instead of one.—*C. R., Shubert, Nebr.*

* * *

I find that a cotton work glove, turned fuzzy-side out and slipped on one hand, is a handy "brush" for cleaning Venetian blinds.—*Mrs. F. F., St. Louis, Mo.*

* * *

If the holes of your plastic buttons wear out, as they sometimes do, fresh holes can be pierced with the aid of a heated needle. This trick is handy when you can't find matching buttons. —*Mrs. E. M., Lansing, Mich.*

* * *

If you have thick material you want to crochet around, insert a large sized needle in your sewing machine, and, using no thread, stitch around the edge of your fabric. The big needle will leave regularly spaced holes, ready for your crochet hook. — *Mrs. R. M., Hopewell, New Jersey.*

* * *

Cookie Cutters have more uses than cookie making. Use them to trace the outlines of simple embroidery on kitchen towels, etc.; as designs for gay decorations on informal furniture; as "stencils" for children to trace and color.—*Mrs. H. Y., Davisville, Pa.*

* * *

Orange peel that is dried and grated makes a very fine yellow powder that is delicious as a flavoring for cakes and puddings. Or a teaspoon of grated lemon rind in sauces or sprinkled over your favorite vegetable salad, provides a new flavor treat.—*E. F., Minneapolis, Minn.*

* * *

Orange sacks make soft dish cloths after they have been washed.—*Mrs. L. C. S., Panama City, Fla.*

* * *

Chats With *Florida Beekeepers*

By NERO DERF

A Keeper of the Bees

At this time of year beekeepers are looking ahead and asking each other, "What do you thing of the honey prospects this year?"

Well, your guess is as good as mine.

Believe you me, it is mostly guesswork.

However, it is a known fact that you can reap no greater harvest than you prepare to reap. While you are wondering what it may be, it is good sense to prepare for what you would like it to be.

I can truthfully say that at this time (middle January) the conditions are perfect for a good orange honey flow. Also I have seen some of our best flows come when there were no reasons to anticipate even an average crop.

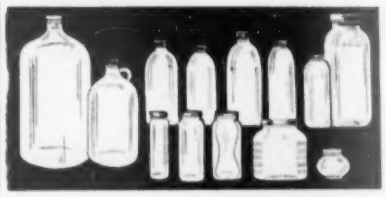
Bees are in very good condition in every place I have heard from recently. There have been less Winter losses than usual. With all this, though, there are many colonies that would be of more value if united with some of the stronger colonies.

I have practiced this at this season of the year for so long I cannot remember where I got the idea, but I believe in it now more than when I commenced. A colony that produces only a super of honey is in the class with a milk cow that produces only a gallon of milk a day. Neither (though they both produce) is worth the worry of caring for at best.

You should sell the cow for beef, but you should unite the bees and you will get all of the space thus gained filled with honey.

Many beekeepers will get a rise in their hopes of the future from visiting the honey exhibit at the Florida State Fair, while perhaps others will be so tired from their work producing and displaying the honey exhibit that they will lapse into a coma and perhaps miss the Spring honey flow completely.

Be that as it may, it is a honey exhibit of a national scope and is certainly well worth all the effort expended. It is hoped that we will get a better coverage of the beekeepers of Florida at the Fair another year by adding an exhibit of collective entries from many smaller beekeepers whereby a beekeeper may show and perhaps win a prize though only showing a limited amount of his product. Certainly we need something of this sort to bring in more beekeepers.



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- ORLANDO
- TALLAHASSEE
- JACKSONVILLE
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- SARASOTA
- ST. PETERSBURG
- TAMPA

Feb. 28th is your last chance to take advantage of the 1950 mid-winter sale Catalog.

"Not a Weed Left"

Tend your garden this modern way. Quick, easy; far better. Rotating blades and underground knife destroy weed growth. "BEST WEED KILLER EVER USED." In same operation they break up the clods and crust, aerate the soil, work the surface into a level, moisture - retaining mulch. A woman or boy can use it —do more and better work than 10 men with hoes.

The BARKER Weeder-Mulcher-Cultivator

Saves You Time— Saves You Labor

New Improved Models
Roller bearings, tubular steel handle, ventilated filler drum and other new features. No other like it; no other so easy to use, so satisfactory. Write for literature, sizes and new low prices.

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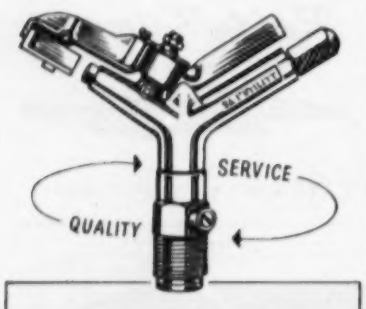

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275 Canal Street, Troy, Ohio

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Citrus On Full Dress Parade

Florida's Biggest Citrus Spectacle Feb. 12-17

FLORIDA'S gigantic citrus industry will be on full dress parade at Winter Haven during the 1951 Florida Citrus Exposition which will open on Feb. 12 for six days.

Originating as the Florida Orange Festival 27 years ago, sponsored by civic clubs at that time and later taken over by industry groups and developed into the "show window of Florida citrus," the Exposition will feature a graphic portrayal of the citrus industry since the first citrus seeds were brought over by the Spanish explorers.

Fresh fruit, single strength canned juice, the recently developed and highly popular frozen concentrates, will all have a place in the show.

The historical development of the Florida citrus industry will be shown through the medium of life-size displays, many of them animated and all of them checked for background and accuracy.

Opening with the traditional inaugural parade on Monday, Feb. 12, the Exposition will have all the regular features such as "Fruitmen's Day," "Governor's Day," "Press Day" with its gridiron type "Press Breakfast", and many other outstanding events, some of them carried over from other years, others being presented for the first time.

Publicity for Florida citrus will be gained by the broadcast from the Exposition grounds each day of the Mutual Broadcasting System's feature, "Ladies Fair," featuring Tom Moore as master of ceremonies. For the past several weeks Moore has been plugging the Exposition on his daily network shows originating in Chicago and inviting Floridians and visitors alike to "come see me at Winter Haven during the Florida Citrus Exposition, Feb. 12 to 17."

Last year the Exposition presented for the first time a real citrus fruit auction with the veteran gavel-wielder, Charlie Irrgang, Sr., president of the Fruit Auction Sales Co., of Chicago, in charge. Several thousand dollars were raised through the sale of the prize-winning fresh fruit, and this money was turned over to a national charity.

Now plans have been made for even a larger auction sale this year and the prizes for the best commercial packs of fresh fruit in all varieties and types of tariff-approved packages from the corrugated box to the standard nailed and wire-bound containers. Prizes will include all-expense trips for the winners or persons they designate to the nation's wholesale and auction markets.

The Florida Citrus Commission is cooperating with the Exposition to make sure the entire industry is well represented.

The opening night feature this year —as always—will be the selection of the 1951 Exposition Queen. Cathy Darlyn, petite brownette of Plant City was the 1950 queen and will pass along the crown to her successor.

Girls from all sections of the state will be eligible for the contest which is to be conducted by the Winter Haven Junior Chamber of Commerce with Gerald Hamor, Jr., of Winter Haven, as the chairman in charge.

Kathy Darlyn, Queen of the 1950 Florida Citrus Exposition, holds the new Florida Citrus Commission "Gimmick" which is the extended hand holding a glass of orange juice and captioned, "Drink This Much Every Day." Kathy and the slogan will be big parts of this year's Exposition.

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Against Termites

(Continued from Page 16)

and females which shed their wings after swarming and become kings and queens, the secondary reproduction caste, the soldiers, and the workers. The worker caste outnumbers all other forms many times. Fundamentally, the two most important castes are the primary kings and queens and the workers. The king and queen are important for their reproductive ability.

The food of termites is almost restricted to cellulose. The principal materials attacked are homes, outbuildings, field crops, fruit trees, stored grain, furniture, paper, and leather products.

To keep termite damage down to a minimum, all buildings should be carefully inspected each year so any termites present will be discovered before they have done extensive damage. All outside wood in contact with the soil should be examined for signs of these insects. Both exterior and interior surfaces of foundation walls, especially unexposed areas beneath porches and cracks in the foundation walls, should be inspected for the covered runways or shelter tubes. Special care should be taken to examine the area where floor joists and foundation plates meet. By poking the wood with an icepick you can estimate its soundness.

Should you find the building infested with termites, try to determine the point of entrance and the full extent of the damage. If the infested wood is full of termites, if you find numerous tubes, and if there is extensive damage, then the application of control measures should not be delayed! You will have to decide for yourself whether you should ignore the termites, control them by reconstruction, treat the building chemically, or call a reliable pest control operator.

Since subterranean termites must have contact with moisture and woody substances for continued development, and the moisture is usually obtained from the soil, the best control is achieved by excluding the termites so that they cannot gain access to the building. If you are a prospective builder, do not fail to consider subterranean termites when discussing construction plans with your contractor. Ninety-five percent of the control of termites should be prevention, and prevention is based primarily on proper construction. The termites can best be excluded by placing a metal shield between the foundation and super-structure. These shields do not necessarily keep termites out of buildings; they will, however, force the insect to build their shelter tubes in the open where they can be detected and where proper control measures can be taken. The shield should be four inches wider than the foundation so it can extend over the edges on each side and be bent down at a 45-degree angle. The shield should be without holes and the corners should be soldered. Solid concrete foundations are also effective in excluding termites.

Some structural mistakes that will render a structure susceptible to termites can easily be corrected. Porch steps, lattices, foundation skirting, and siding of frame buildings should not come in contact with the ground. Tree

FLORIDA FARM MARKET PAGE

The rate for classified advertising on this page is 10 cents per word, per issue, cash with order

TREES — NURSERY STOCK

RUBY RED Seedless Thompsons, Pink Duncan and Marsh Seedless Grapefruit, Temple Orange on Lemon or Sour Orange Root, Pineapple, Valencia Orange on Sour Root. Pineapple, Valencia, Navel, Temple Orange and Orlando Tangelo on Cleo root. Trees located in Central Florida. Can be seen by appointment. O. J. Warmack, Phone 379W, P. O. Box 1137, New Smyrna Beach, Florida.

RUBY RED Seedless Grapefruit, also all standard varieties of citrus on lemon and Cleo stock. Now booking for winter 1950-1951. Grand Island Nurseries, Eustis, Florida. Phone 28-red.

ROSE BUSHES—All Best Varieties. Free Catalog. Hints on care and culture. McClung Bros. Rose Nursery, Route 5, Box 275-L, Tyler, Texas.

WORLD'S LARGEST GROWERS early bearing papershell Pecan trees. Fruit trees. Catalog Free. Bass Pecan Company, Lumberton, Mississippi.

CITRUS TREES—Make reservations now for coming season's plantings. Oklawaha Nurseries, Lake Jem, Florida.

GRAFTED AVOCADO and Mango Trees. Best Varieties. Catalog. Florida Tropical Nurseries, Valrico, Florida.

PEACH TREES, Improved Jewel Variety for January-February 1951 Delivery. R. P. Thornton, Box 2880, Tampa, Florida.

SEEDS — PLANTS

CHAYOTES (VEGETABLE Pears), in sprouted, semi-plant, and plant stages, For Sale. Post card request, giving your full address, will be promptly honored with my folder, About Growing Chayotes, Recipes, etc., gratis. I advise planting in regions free of heavy frosts to Nov. 1st. Vine not hardy. Dr. David Fairchild writes me: "It (the Chayote) deserves a place on the American menu." Also, "I think a visual container is a good idea for the fruit is very beautiful and unique." Ben. H. Groover, P. O. Box 1009, Lake City, Florida.

CERTIFIED STRAWBERRY Plants: Missionary, Blakemore, Klondyke, Klonmore, Dunlap, $3.50. Aroma, New Robinson, Tenn. Shipper, Tenn. Beauty. Ten Supreme, Tennessean 965 - $4.50. Premier Progressive Everbearing $6.00. Gem Everbearing $8.00. All prices per thousand. All varieties are true to name and will be packed in wet moss to reach you in good transplanting condition. Orders filled promptly. Orr Plant Farm, Harrison, Tenn.

FIVE MILLION Frostproof Cabbage plants ready — Jersey & Charleston Wakefield, Ferry Round Dutch — Onions, Sweet Spanish & Bermuda — Lettuce, Great Lake, Iceburg, New York; 300 - $1.50; 500 - $2.00; 1000 - $3.50 postpaid. Express Collect $2.00 - 1000. Good plants, quick shipment. Harvey Lankford, Franklin, Virginia.

MILLIONS FROSTPROOF Cabbage Plants Ready for Shipment: Early Jersey Wakefield, Charleston Wakefield, Ferry's Round Dutch, Flat Dutch: 300, $1.50; 500, $2.00; 1,000, $3.50 Prepaid. Express 1,000, $2.50; 10,000, $20.00. Satisfaction Guaranteed. Dixie Plant Co., Franklin, Virginia, Telephone 8162-4.

WILLHITE MELON Seed Farms—Poolville & Weatherford, Texas,—Has the new Congo (Anthracnose Resistant), Texas Giant, Clara Lee, Certified Black Diamond; 40 Additional varieties of watermelons, Cantaloupe and other vine seed. Send for free Catalogue with planting guide.

VEGETABLE PLANTS. Cabbage: varieties, Early Jersey, Charleston Wakefield, Marion Market and Copenhagen, $1.50, 1,000; White Bermuda Onion Plants, $1.50, 1000; Collard Plants, $1.50, 1000. Wholesale Plant Co., Quitman, Georgia.

STRAWBERRY PLANTS—Missionary, Klondyke, Tenn. Beauty, and Blakemore. $5.00 per 1000 plants, ready Sept. 1, 100 for $1.50; 500 for $4.00. John Lightfoot, Birchwood, Tenn.

AZALEAS and CAMELLIAS, 10 to 12 inches tall, 10 for $3.00 postpaid. Ask for book of plant bargains. Rudolph's Mail Order Nursery, Mobile, Alabama, Crichton Station.

QUALITY GLAD Bulbs—Send for our catalog of the best in Glads at reasonable prices. Gladridge Gardens, Perry 7, Ohio.

CERTIFIED BUNCH Porto Rico Seed Sweet Potatos and Plants. Leeland Farms, Leesburg, Georgia.

TEN LEADING VARIETIES: Fancy Leafed Caladiums, blooming size, mixed colors, $1.00 dozen. Dee Udell, Mascotte, Florida.

SEVICEA LESPEDEZA, fine grazing, P. 99.80% - G. 91.50%. 22¢ per lb. C. E. Nutt, Safford, Alabama.

POULTRY — RABBITS

"BIG BARRON Leghorns," Austra-Whites, Leg-Hamps. Pedigree sired 200-346 eggs. Nonsexed, $9.90; pullets, $18.50. Leghorn cockerels, $2.98; Hybrids, $6.25, prepaid. Four weeks pullets, $29.90; broilers, $17.98. Money-back guarantee. Heiman's Hatchery, Montrose FG, Missouri.

POULTRY—RABBITS (CONT.)

HELM'S PULLORM Clean Chicks. Certified Leghorns. Nationally famous. Thirty years continuous flock improvement. Leading breeds, Crosses. Danish Brown Leghorns holder three world records. Brooding bulletins. Helm's Chicks, Paducah, Kentucky.

PEAFOWL, PHEASANTS, Bantams, Waterfowl, thirty varieties pigeons. John Hass, Bettendorf, Iowa.

BRAY'S OINTMENT for all Rabbits with Ear Canker. One size $1.00 postpaid. Buy it now. Bray's, Box 135, Middleton, Ohio.

HORSES — LIVESTOCK

BOURBON'S GOLDEN Eagle of Belvedere—Grand Champion, many times, a Golden Registered Saddlebred Palomino at stud. ASHBA 25409-PHBA 10510. A beautiful Palomino colt for sale. Raymond Sheldon, Tampa, Florida. 81-0393.

DOGS — PETS

COONHOUNDS, COMBINATION Hounds, Foxhounds, Rabbit and Beagle Hounds a Specialty. Puppies all breeds. Prices Reasonable. Free Literature and Pictures. Trial. Raccoon Mountain Kennels, Box 268, Albertsville, Alabama, Dures Thomas, Owner.

RAT TERRIER Puppies. Bred for ratters. Crusaders Kennels, Stafford, Kansas.

COONHOUNDS, Redbones, Blacktans, Blueticks, Foxhounds, Rabbithounds, Beaglehounds, Birddogs. Puppies all breeds. Free literature and pictures. Trial. Short Creek Kennels, Box 141, Boaz, Alabama.

MACHINES—EQUIPMENT

TRACTOR PARTS Headquarters. 1951 Catalog Free. Prompt service. We sell for less, Merchandise guaranteed. Acme Tractor Supply Company, Lincoln, Nebraska.

WAR SURPLUS—200-Ampere generators for electric welding—$33.00. Ideal for tractor or motor. Free literature. Lewis Short, Burrton, Kansas.

BUILDING SUPPLIES

KILN-DRY FLA. Pine—Tide Water Red Cypress, Fir, Pine, Oak, Plywood, Mouldings, Steel Casement, Store and Factory Steel Sash, Aluminum Sash, Doors, Treated Windows, Barrett Quality Roofing—Roll and Shingles, Galv. and Aluminum Roofing, Mortar Mix, Cement, Steam Cured-Pittsburgh Tested—Grade "A" Concrete Blocks, Ohio Super Spray (Agricultural) Hydrated Lime, Finish Lime, Plaster, Paint—Aluminum, Barn, and House Paints: 1,000 other items on display. Write, wire, phone for price list. "100-Mile Immediate Delivery to your door—we're as near you as your phone." Hale Godwin, Owner, Home Builders Supply, 1105 Ellamae, (1105 E. Platt), Phone 2-9331, Tampa, Florida.

BARNHART'S LUMBER Yard, 4121 Nebraska Avenue, Tampa 3, Florida, Phone 33-6583. Lowest prices on doors, windows, and paint.

STEAM BOILERS

AMESTEAM GENERATOR — fully automatic — complete feed - water pump and condensate tank with accessories. 10 H.P. through 300 H.P. Lenfestey Company, Tampa, Florida. Phone 2-3771.

LADDERS

LADDERS FOR Citrus Pickers - Lemke, successor to T. L. Jones—near Thonotosassa Postoffice, Florida. Phone 38-2262.

SOIL SERVICE

EARTHWORMS: DOMESTICATED hybrids or soil builders, fish bait or propagation. Ask for free literature. Williams Hatchery, 1121 N.W. 51st Street, Miami 37, Florida.

HOMEMAKERS

STAINLESS STEEL. 18-8 Vapor seal Sauce Pans, Tea Kettles, Percolators, Pressure Cookers, Mixing Bowls, Oven Roasters. Flatware—Fry. Pans, Pie Plates. Major Company, 71 Milford, Springfield, Mass.

REALIZE MORE from your wool. Send it direct to factory for fine blankets, fringed robes, etc. Free literature. West Texas Woolen Mills, Main Street, Eldorado, Texas.

DRESSES 18¢! COATS $1.00! Blouses 35¢. Free Catalogue. Crown, 164-FL. Monroe Street, New York 2, N. Y.

STAMPS

115 DIFF. STAMPS 10¢ with approvals. Gro. Harris, Belleview, Florida.

MISCELLANEOUS

WARFARIN — UNIVERSITY Wisconsin amazing discovery—kills mice and rats. Safe. Anyone can use it. 2 ounces Do-Away Rodenticide make 2½ pounds bait sufficient for average farm. Sent postpaid 1.00. Guaranteed. Southland Products Company, Lake Worth, Florida.

BEEKEEPING

FOR SALE: 50 hives of bees, standard equipment, painted hives, metal covers, bees free of disease. Also 8-Frame honey extractor and tank. Nolan E. Bay, R. 1, Box 155, Winter Park, Florida. (Lewis Drive off Lee Road).

PHOTOGRAPHY

16 PRINTS or 8 Jumbos from Roll, 25¢ with this ad. T. Skrudland, River Grove, Illinois.

ROLL DEVELOPED Free, 3½ x 5 enlargements 6¢ each. Photographer, Box 802, Bradenton, Florida.

Citrus Blackfly

(Continued from Page 36)

growers and one government representative from each of the three states, and two of the government representatives also are growers.

It receives technical assistance from the Mexican Secretary of Agriculture and the USDA entomology laboratory in Mexico City. Senor Berlanga, as were other growers, was lavish in his praise of the USDA laboratory workers and the help they are giving Mexican growers.

The Committee's 268 employees maintain 18 quarantine stations at borders of the infested area, conduct regular inspections to discover new infestations, sell cube roots to growers, and do spraying for growers. The growers pay for insecticides and gasoline, while the committee does the spraying.

If a grower decides his trees are not profitable and wants to abandon them, the committee will pay him from three to six pesos per tree to have them taken out and destroyed, so they will not be a neglected, standing threat to other trees.

Inspection is no small job, since Mexico has around 17 million trees, of which more than 11 million are in San Luis Potosi, Tamaulipas and Nuevo Leon. Under an appropriation by Congress for the purpose, USDA inspectors in Texas regularly cooperate with the Mexican inspectors in the three states.

That their work is efficient is attested by the fact that they recently discovered a cluster of blackfly eggs on a single leaf on a single tree in a grove, and were unable to find any other signs of the pest anywhere nearby.

As an indication of the magnitude and thoroughness of the inspection, J. F. Cooper of the USDA Mexico City laboratory told me that he had workmen spend three days stripping and counting the leaves of a single mature lime tree. How many were there? Well, it's a safe bet that you missed your guess. There were 180,709 leaves on the one tree.

When the inspectors found the egg cluster on the single leaf in a grove, they did even better than finding the proverbial needle in a haystack.

And so, Florida growers are glad that growers and the government of Mexico are making strenuous efforts to keep a destructive pest under control and at the same time reducing its chances of crossing the border to infest groves on this side and cause losses and trouble to a multi-million-dollar industry here.

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Subscriptions and renewals in the vicinity of your home.

FLORIDA GROWER desires additional resident representatives. Energetic person can make $60.00 weekly.

Successful representative can win own private territory. Good references required. Write or call in person.

FLORIDA GROWER MAGAZINE
P. O. Box 2350 Tampa, Florida

Antiseptic First Aid Dressing Almost
INSTANTLY RELIEVES PAIN OF MINOR CUTS, BURNS
Helps Heal, Prevent Infection Too!

For amazing relief of minor burns, cuts, apply Dr. Porter's Antiseptic Oil quick! Acts 3 wonderful ways at once: (1) Relieves pain almost instantly; (2) Aids healing; (3) Helps prevent infection! Developed by well-known railroad surgeon after hundreds of accident cases. 12,000,000 bottles sold! Use as directed for best results with minor burns, cuts, chafing non-poisonous insect bites, tender feet.

Great for Animals Too! Livestock owners also cheer remarkable benefits for harness burns, saddle sores, halter galls, wire scratches. Get Dr. Porter's Antiseptic Oil today.

Order
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PORTABLE IRRIGATION PIPE
NOW
for
SPRING DELIVERY

Don't wait until next summer's sun is burning up your crops or a dry spring is ruining your chances for profit before you order FLEX-O-SEAL Portable Irrigation Pipe. Make sure that you have this protection at the start of the growing season by placing your order TODAY. Write, wire or phone your order. FLEX-O-SEAL is available in 3, 4, 6, and 8 inch diameters in Aluminum or Galvanized. FREE folder, *Rain the Lifeblood of Farming* mailed upon request.

CHICAGO METAL MFG. CO.
3729 S. Rockwell Ave
Chicago Illinois

FLEX-O-SEAL

Many Florida Growers Tell Us They Get

BIGGER YIELDS

and

FINER QUALITY CITRUS

and TRUCK CROPS

when they use

International Fertilizer

There are plenty of Florida growers, fathers and sons, who have been using *International Fertilizers* regularly for twenty-five, thirty-five and up to forty years.

The familiar red *International Fertilizer* sign is like an old friend you can depend on year after year. We, who make *International Fertilizers*, are proud of this long record of loyalty because it means that growers have had good results with these fine quality plant foods.

A lot of experience has gone into forty years of making *International Fertilizers*. Experience and an intimate knowledge of the problems of Florida growers, and continuing research in laboratories, in citrus groves and on the farm. So when you order *International Fertilizer*, you can depend on getting a fine quality fertilizer that is expertly blended with carefully selected raw materials. You'll get the excellent mechanical condition you want for easy handling. And you can select the exact grade you need for your individual crops.

International field representatives are well qualified by experience and special training to assist you in the selection of the plant foods you need. The *International Fertilizer* dealer near you will be glad to serve you now.

PLANT FOOD DIVISION

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

General Offices: 20 North Wacker Drive, Chicago 6

INTERNATIONAL FERTILIZERS

Florida District Office at Mulberry

Fertilizer Plants at Jacksonville, Pensacola and Mulberry

Satisfaction at Harvest Time

Spring Decides Fate of Stock

Work Now Determines Success in Year's Livestock

By R. S. GLASSCOCK

Animal Husbandman, Florida Agricultural Experiment Stations

THE next few months will determine, to a great extent, our year's livestock production. Some of the pig crops have arrived and are ready to take advantage of the growing and production season ahead. Sows that have not farrowed should be put into suitable farrowing quarters and given close attention until the pigs are about 10 days old. A satisfactory swine production program is impossible unless a large number of pigs are born and saved.

Farrowing pens should be cleaned and thoroughly disinfected. New-born pigs should have their navels treated with tincture of iodine, and their sharp teeth should be clipped to prevent injury to the sows while nursing. Wire pliers may be used for clipping teeth, but care must be taken not to leave sharp pieces of the teeth extending beyond the gum. A smooth even break is satisfactory even if just the extreme tip of the tooth is removed.

After a week or 10 days the sow and litter should be moved to fresh clean pasture. It is best to use a field that has been plowed and planted to some pasture crop. Cat-tail millet is an excellent crop for grazing for spring and early summer.

The boar pigs should be castrated when about 6 weeks of age. The litter may be weaned at approximately 8 weeks of age and immunized against cholera. This is an essential procedure.

Occasionally, hogs do not get cholera if not immunized and, for that reason, many producers get careless—and large numbers of hogs are lost annually. The loss of one hog will amount to more than the cost of treatment for many years. In addition to those details, good feed, fresh water, and shade are essential for an effective swine production program.

New born calves should have their navels treated with tincture of iodine, and then a screw-worm killer and repellent should be applied. This treatment will usually be sufficient until the navel cord drops off about 10 days later. Often screw-worm flies will blow the raw area. Another application of screw-worm killer and repellent at that time should end all danger of infestation.

Close observation of cows and calves at this time of year is essential for an effective program. Some heifers will not give enough milk for healthy calves. Such calves may be allowed to nurse another cow in the herd that is giving too much milk for her calf. Such adjustments usually can be made with little difficulty when the calves are a few days old, but after two or three weeks it takes considerable effort to make a change. Heifers that are well grown and do not give enough milk for their calves should be sold. It is poor economy to keep a cow in the herd that is not a good milker, regardless of how good she may look.

Heavy producing cows should be given special care when their calves are born, and milked out to prevent congestion of the udder. Cows with teats too large for young calves to nurse should be sold. Observations and adjustments made early in the season will pay good dividends. Good feeding and management will end practically all

Iowa Farmer's Hogs Take First Prize

Champion Load Fed with Lye Since Weaning

IDA GROVE, IOWA—George E. Hoffman & Son are proud to have won the car lot hog competition at the 1946 International Livestock Show. Using lye to feed the hogs must have made a great deal of difference. "We have always fed Lewis' Lye to our hogs," says Mr. Hoffman. "Our Grand Champion Load in 1946 were fed Lewis' Lye from weaning time to the show."

There is nothing new about feeding lye to hogs. This practice has been handed down from father to son for three generations. Today you will find many farmers like George Hoffman feeding lye to their hogs regularly—whether they breed champions or just raise a few hogs for themselves.

These farmers find that lye in the slop or mash helps neutralize harmful acids. It makes oat and barley hulls more digestible. It gives feed the right alkalinity. And lye costs only a fraction of a cent per hog per feeding.

Then, too, when used for sanitation, hot lye solution kills roundworm eggs and helps to prevent the spread of diseases from contaminated surroundings. All this results in faster gains with less feed.

One famous product, Lewis'® Dixie Lye, has been used by hog raisers for many years. Farmers highly recommend it, because it has proved its value through actual use on the farm.

You can get a lot of information about raising hogs in the Lewis' Dixie Lye booklet, "The Facts behind a Lye." This booklet is filled with helpful, money-saving pointers about hog raising. For a free copy, write to: Pennsylvania Salt Manufacturing Company, Dept. 38D, 1000 Widener Building, Philadelphia 7, Pa.

OTHER PENNSALT PRODUCTS

Knox Out® DDT INSECTICIDES for HOUSE • BARN • GARDEN

difficulties in a livestock production program.

If pasture is not abundant, it is advisable to plant a field of cat-tail millet for supplemental feed. Such a rotation will permit the permanent pastures to produce sufficient leaf surface for rapid growth. Overgrazing is the most common practice, and it results in poor pastures and poor cattle. Cattle under such conditions appear to be suffering from parasites or mineral deficiencies, but they actually are starving. Starving cattle are subject to many ailments and diseases and are a constant source of worry. When cattle receive good management and good pasture, sickness, disease, and death are indeed rare. Seldom will there be any difficulty during calving season, and the pleasure and satisfaction is probably greater than in any other type of business.

Returns per unit of land utilization are much greater when pastures are grazed moderately. An actual increase in tonnage of beef results and the quality of meat is greatly improved. This results in a higher price per pound and a greater return in money. In spite of all the advantages of good management with respect to grazing, some cattlemen persist in over-grazing and then attempt to solve their difficulties by drenching.

It is just as essential to use fertilizers for production of pastures and livestock as it is to fertilize for the production of fruits, vegetables, and other crops. Good cattle can be produced only by good feed, and good feed grows only on good soil. Good judgment is required in the use of fertilizers for beef production, because returns may not justify the expenditure on poor types of soil. More fertile areas will give good returns when fertilized, and by this management the expenditure for supplemental feed is reduced and the quality and quantity of production is greatly increased.

In conclusion, plenty of fresh water and shade during the summer costs little, and the returns will be great for the investment. If it is necessary for cattle to travel long distances in the blazing sun for water, they will not get enough for their requirements. In addition, they will gorge themselves when they do drink, all of which results in poor gains.

* * *

NewCitrus Spray Guides Ready Soon

THE 1951 Better Fruit Program "Spray and Dust Schedule" will be out soon. This program was developed by the Citrus Experiment Station with assistance of many groups and printed by the Florida Citrus Commission. The 1951 schedule has an explanation of all citrus insects and diseases and gives control for each.

Two schedules, A and B, are given depending on whether you wish to produce fruit for the fresh fruit market or for the processing market. This is one of the best citrus "Spray and Dust Schedules" yet published because it is full of information and simple to follow. As soon as the schedules are received they will be available upon request to the County Agent's Office, Court House, Orlando, Florida.

* * *

CLUBS SERVE OTHERS

Several Pinellas county home demonstration clubs are participating in activities outside their own interests, according to Mrs. Charlotte M. Lattimer, home demonstration agent.

Mrs. Lattimer reports that one group of clubs is taking care of needy families in their communities, while another club is providing toys for the Crippled Children's Home.

Fine vertical pumps don't just happen

Vertical pumps that carry the Johnston Trade Mark are the finest. They are the result of pump "know-how" gained over a forty-year period, applied to manufacturing and installation methods... They are the result of the closest possible attention to every detail from design through finished product... They are the result of the fact that water costs must be held to a minimum... They are the result of engineering and production "know-how" that makes every pump part the finest...

And, most important, in back of the product stands the Johnston organization—mature in experience, strongly financed and aggressively anticipating the requirements of pump users. The name Johnston has EARNED its world-wide reputation by protecting the investment of pump owners and supplying them with profit-earning equipment.

When you want better vertical pumps, go to your local Dealer at the sign of the Johnston "J." *The Johnston Pump Company, 2324 East 49th Street, Los Angeles 58, Calif.*

Write today for complete information and the name of your nearest Dealer

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JUNIOR TURBINES
Big Pump Features and Small Pump Economy
PROPELLER AND MIXFLOW
Large Capacity at Low to Medium Heads

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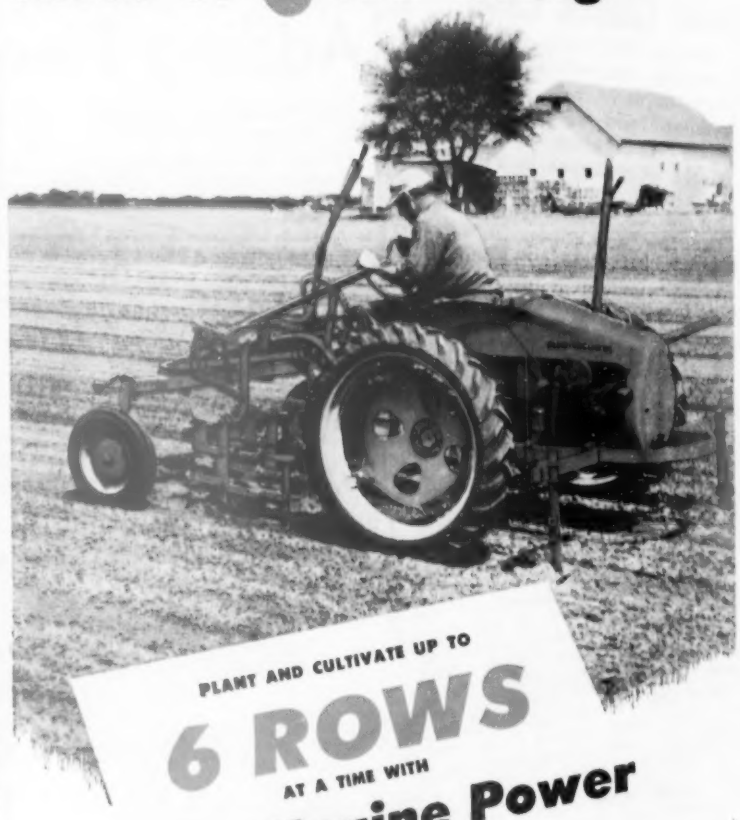

The farm idea of the year is knocking at your door. Acres of good living and high cash returns can be yours with *multiple-row* beans and vegetables, as well as fruits, berries, melons, row-cultivated field seeds, legumes, cotton or sorghum.

Now you can plant and cultivate many of these high-pay crops up to 6 *rows at a time* . . . riding in an easy seat . . . with the rear-engine Model G and front-mounted tools.

The thrifty Model G is more than an ideal helper tractor for planting and growing regular field crops. It gives you *straight-ahead* vision and a special 3/4 m.p.h. creeper gear for cultivating inch-high seedlings in close rows. You can vary wheel spacing from 36 inches to 64 inches and adjust quick interchanging tools for any row width.

Multiple-row crops can prove to be acres of gold in 1951. Take a look at their possibilities from the front-view seat of the Model G Tractor.

THE WHY of model G design

HIGH-ARCH open frame gives complete vision and high clearance for easily attached, strong, free-action implements.

TRACTION is boosted by engine weight over rear wheels. Permits use of 6-inch tire necessary for multiple-row cultivation.

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☐ Tell me how I can see the Model G Tractor demonstrated.
☐ Send me free color literature on the Model G power outfit.

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Town _____
RFD _____ State _____

Florida Vets Farm Wild Glades Land

Nearly 150 young veterans are breaking the soil of more than 5,000 acres of raw, uncultivated Glades land to start the first farm cooperative composed entirely of veterans in Florida.

According to Florida Grower Magazine, which is featuring this Pelican Bay Co-op in the July issue, the state will spend more ... in installing water ... the water

South, Central Florida Adding Tree Farms

By WALTER G. MARTIN
Florida Forest Service
(From The Florida Grower)

Florida's forestry, sometimes thought of as being limited to Northwest and Northeast ... is making a come... and South... sho... tria... tion... prop... it see... will b... enjoyi...

The ... being ... proper ... tices. T... that the ... ing timbe... a system ... haryested ...

manufacturing com... three paper and ... companies.

Anothe... about Hi... s emp... erativ... as cou... His di... nd own... ment p... ems. The for... en Juskie of ...mpa, re... great intere... armers an... counties. ...isted ni... rs wit... t pr... f ...

1950-51 Citrus Season Will Be The "Big Push"

Florida Grower magazine predicts that the present citrus season will be one of the most crucial ... industry.

...rming this season, "The Bi... the magazine pointed ...jor phases of the indus... ...ional production of ... ...en a sharp ups... ...nting Florida's ... hurricane, the... ...re fruit for A...

...obably an even ...dition facing Flo... economy, the magaz... be shortages in ... Already grov... ...hed by Se... winter ...

FLORIDA LED NATION IN WATERMELONS

Accordng to Florida Grow... er Magazine, Florida led the na... tion in the production of wa... termelons last season with an... estimated 14,640,000 melons on... 61,000 acres.

Georgia was second in produc... tion with an estimated 12,500,... on 49,360 acres. By July 20 ... made 10,066 carlo... half of t...

FLORIDA LED NATION IN FARM INCOME INCREASE

According to the Florida Grower Magazine, Florida led the nation in farm income increase in 1949 with a total increase of 18.9 percent.

Take A Grove "For A Ride"

When you pick up 4000 fully matured orange trees and set them down 25 miles away, that's what's known as taking a grove "for a ride."

Just how the Dr. Phillips Cooperative, at Dr. Phillips, did this is reported in the October issue of Florida Grower magazine. The most important tool in the giant operation was a huge diesel powered bulf dozer rigged with four horizontal railroad irons. These heavy irons were driven under the roots of the tree then pushed ahead. The trees were ripped from the ground like a rake would pull weeds from a garden.

The trees were loaded aboard ... trucks and taken to the wait... grove site in Lake county ... ...ruiont. There they ... on contour—the ... planting ...

Wilma Tompkins Was 1939 Cover Girl For "Florida Grower"

The July issue of the Florida Grower, published in Tampa, carried ... picture of a ... girl ... be un... ...ttle se... ...od truc... ...r Florid... ...have ... ...than in ...

...ich is ... land area... per cent of ... the public ... ...nths, 412 ... ...l commerc... ...ely owned ... ...ough c... ...f pul... ...al v... ...to ...

Florida Corn Goes To Market Quickly

New Yorkers are eating Flori... corn before the stuff gets a chanc... to become accimated to Yanke... weather.

Florida Grower Magazine's M... issue tells how Paul Kickma... Farms, Ruskin, packs and supplie... markets east of the Mi... ...has been a lead... ...stry in...

LIVESTOCK AND CROPS TO STAY IN DEMAND

There will be increasing demand for Florida livestock and field crops as a result of the stepped up military program.

F. W. Parvin, reporting in Florida Grower magazine, predicted prices would hold and rise for these two products in the coming months.

CUBA SEEN AS MARKET FOR FLURIDA DAIRY STOCK

Clarence W. Reaves, dairy specialist with the University of Florida Agricultural Extension Service, tells in the June issue of Florida Grower Magazine, why he thinks Cuba and South American countries may soon be ... Florida dairy ... Just returne... ...d, "I be... ...profitable sales of ... ...in-American coun... ...Cuban ... ...by use of ... ...United ... ...orida's ... ...sets ... ...les fr... ...made ...

FLORIDA FROZEN PUREES WILL GROW MORE POPULAR

Sorber reports in Florida Grower magazine that smooth, "sieved" fruit products will be used more and more in ice cream, sherbets, and other frozen desserts; also ... sundae toppings, ... confections ...

Agriculture Workers Get Social Security

New Law Affects Farm Labors Employed For Quarter Year

Florida farmers are going to have more bookkeeping tasks. Here is a summary of the important phases of the recently enacted Social Security act pointed out by Florida Grower Magazine which ... farm ... ...

Fla. Concentrators May Process Milk

Milk appears to be one of the most promising food products that citrus concentrate plants may be able to process successfully, according to a story in Florida Grower Magazine. Recent tests conducted by J. L. Heid, ... search head of the ... Cannery, Lake W... ported to be "as ... Citrus juice concen... ut 90 days after ... ed." After the ... tiats have found ... ...tituted milk ...

Florida Grape Growers Enthusiastic About New Market Possibilities

Florida Grower Magazine features the new interest in grapes in the April issue ... ...ng growing ...

Big Citrus Honey Crop Predicted

Nero Derf, bee editor of Florida Grower Magazine, predicts a "bumper" crop of citrus honey this season. Derf ...

War Supply And Demand Affect Fruit And Produce

Florida Grower Magazine points ... at the Korean war and the battle between expanding Florida pro... ...n and national consumption ... ...ctors in the outcome ... ...and vege...

CITRUS PACKERS TRY COLD COLOR PROCESS

Tests runs for applying additional color to citrus by a new cold-color process have been conducted at the plant of the Haines City Citrus Growers association with apparent success.

Florida Grower Magazine reports that the new process may ...

Floridian. Win Recipe Prizes in Florida Grower

GINGERBREAD UPSIDE DOWN CAKE

... tablespoons butter ...

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from
FLORIDA GROWER
were FEATURED by
FLORIDA NEWSPAPERS
in the past NINE MONTHS

THE GROWER is the pulse of FLORIDA AGRICULTURE

Education In Eating

Use the Basic 7 Plan

By DR. R. B. FRENCH

Biochemist, Florida Agricultural Experiment Stations

ALL OF US are interested in food and eating. "Tell me what you eat and I will tell you what you are," is a saying with a long background of observation behind it. Authors of mystery stories have used the food habits of the suspects as clues important in the unmasking of the criminal. Poor eating habits result in a long list of clinical symptoms that almost seems a list of human ills.

Education in eating is a necessity for all of us. As soon as we get away from a milk diet, under the modern conditions in which we live, we have to use expert directions for our eating or suffer the consequences. And the consequences that we moan about to our doctors more often than not are the result of our ignorant eating. Unfortunately, the clues leading to the causes of our troubles are usually confusing as those of the best mystery thriller.

Dr. French says the science of nutrition is as complex as any science and the experts' knowledge is usually restricted to a small part of the field. Fortunately, however, certain general rules for eating on nutrition and health have been laid down which are workable and moreover are easily learned. Such, for example, is the widely publicized "Basic Seven Foods" plan of the United States Department of Agriculture.

The plan is a formula that divides foods into 7 groups and can profitably stand much repetition. We should check on our eating and see that our children and ourselves are getting at least one food from each group every day.

1. Green and yellow vegetables such as sweet potatoes, rutabagas, tomatoes and greens. These are among the best sources of vitamin A.

2. Oranges, tomatoes, grapefruit, raw cabbage or salad greens are the major sources of vitamin C. The first three of them are being canned (or concentrated), are available and cheap, and hold their vitamin C content after processing.

3. Potatoes and other vegetables and fruits are important as sources of energy. The Irish potato contains only a small level of vitamin C but because of the low intake of vitamin C in many diets and the fact that considerable quantities of potatoes are eaten, the C content of the potato has furnished in the past a very important portion of this factor in the diet.

4. Milk and milk products—such as fluid, evaporated, dried milk or cheese are emphasized for their protein, vitamin and mineral contents. Milk is one of the best sources of both riboflavin and calcium. In fact, it is difficult to make up a diet containing adequate amounts of calcium without including milk. Such a point serves to emphasize the importance of milk in the diet not only for children with their growing bones, but also for older people whose need for calcium in the diet is dramatically expressed by the breaking or crumbling bones of the aged.

5. Meat, poultry, fish or eggs, dried beans, peas or nuts, peanuts or peanut products are our best sources of protein and carry quantities of the B vitamins and minerals as well.

6. Bread, flour, cereals — natural whole grain or restored — constitute the largest single item in the world's food supply. It is the major energy supply for the world. This group is an excellent source of energy and when the whole grain is used, or the restored grain, makes an important contribution to our supply of parts of the vitamin B complex.

7. Butter and margarines with added vitamin A, like other fats, are our most concentrated source of energy. These two fats are given a separate grouping because of their contribution of vitamin A to the diet in addition to that supplied by the green and yellow vegetables and yellow fruits.

The whole plan for bettering our eating can be simply summed up by remembering that we should eat more eggs, milk and other dairy products, more green and yellow vegetables and more vitamin C rich fruits.

Following such a program we will better our intake of those items that are known to be low in most our diets such as protein, iron, calcium, thiamin, riboflavin, vitamin A and vitamin C. The basic 7 plan is designed to increase the level of protein, certain minerals and the so-called acessory food substances, the vitamins in the diet.

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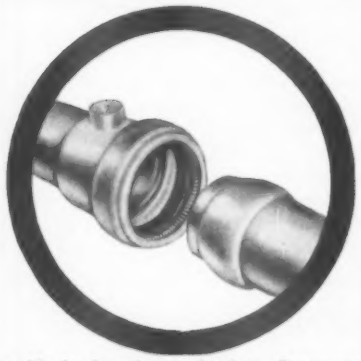

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EDITORIAL COMMENT

I Dare You

PAUSE A MOMENT, if you will, and make a mental inventory of the amount of timber on your farm. If you sold it all would it bring you the price of a new truck?

The chances are it wouldn't. That is, if you are the average Florida farmer. Or maybe it would bring you a tidy little sum if you cut *all* of it. But trees are attractive. You wouldn't want to strip your land of *all* your trees.

In all of agricultural history no crop has been neglected like the tree. We all like trees; they give us shade and shelter and break the monotony. It is hard to think of trees as a crop—especially if you have never sold any. A tree's just something that happens. Or is it.

No, trees don't just happen. They may be a bit heartier than your other crops, but trees are still a crop. They spring from a seed, they feed from their roots, they suffer from drought, and they die from disease.

And they die or suffer some injury from every fire that passes over their roots.

Millions of acres in Florida could be bringing their owners income from regular timber crops. But this isn't going to *happen*. It's necessary to start a young crop again, and again, and again to keep it coming just like your other crops so you don't have to cut *all* of it to buy a new truck.

You've probably heard your county agent, your forester, or a number of others talk about how important forestry is to Florida. And they are right.

In 1948 we sawed our trees into $41,018,000 worth of lumber. Pulpwood companies turned Florida timber into manufactured materials worth $102,215,000 wholesale. Navel stores brought another $32,088,000 and veneer $9,051,000. In all, Florida timber was converted into manufactured materials worth $200,216,000—a good bit more than packed and processed citrus brought.

Big as that may sound, it's just a drop in the bucket compared to Florida real forest potential. Florida has the most undeveloped forest land east of the Rockies. And about 75 per cent of our "developed" forests are understocked. That's why those who really understand are telling us to "Wake up. Wake up. Wake up."

And quite a few Florida farmers are waking up—some did a number of years ago. Some have been getting income from their timber crop with clocklike regularity. Join them now and you will still be one of the pioneers of Florida forestry, because the practice of growing trees for income is still in its infancy among our state's farmers.

If fire never swept through our forests maybe more Florida farmers would be interested in timber now. This is certain, they would have had 10 times as many trees on their land today.

Fire is death to infant trees, and therefore the great destroyer of the tree population. Besides this it injures the sustaining trees in many ways. Last year 20 per cent of the unprotected forest lands of the South were damaged by fire. But fire is not the biggest obstacle. First, farmers must be convinced that it makes good sense to grow timber as a regular crop. Then they will want to protect their trees from fire. Fires can be licked by know-how and cooperation.

Our Great America ☆ by Mack
AMERICA IS DEVELOPING A NEW CONCEPTION OF ITS FORESTS.... WE ONCE VALUED OUR WOODLAND BY HOW MUCH TIMBER IT HELD - BUT WE ARE NOW LEARNING TO MEASURE IT BY HOW MUCH IT WILL GROW
IN THE WEST AN ACRE OF RAPIDLY GROWING FOREST WILL PRODUCE THE WOOD NEEDED TO BUILD A FIVE ROOM HOUSE EVERY SIX YEARS
AN ACRE OF FAST GROWING SOUTHERN PINE WILL PRODUCE THE WOOD FOR A GOOD SIZED BARN EVERY FIVE YEARS
IN THE MOST PRODUCTIVE NORTHERN FORESTS AN ACRE OF PINES WILL GROW ENOUGH WOOD IN ONE YEAR TO MAKE NEWSPRINT FOR A 24 PAGE EDITION OF A DAILY PAPER WITH 5250 CIRCULATION
THE TREES OUR FORESTS ARE GROWING TODAY WILL PROVIDE OUR WOOD SUPPLY FOR TOMORROW

Your Equipment?

HOW MUCH longer will your farm equipment last? It's obvious farm machinery is going to be in shorter supply as war contracts become more and more demanding on farm equipment manufacturers. Better make a brief inventory of your stuff.

If it's completely worn out, now is a good time to replace it. If it still has some service left see about getting it repaired. Don't go on a buying spree. Indications are that the government will not let farm equipment get too scarce even if we have all-out war. Food as ammunition will be needed in even bigger quantities.

Now is a good time to practice some good equipment "conservation!" One of the best ways a farmer can "tighten his belt" is make his tools go farther. Here are some hints.

Keep your equipment clean
Keep it indoors when not in use
Make repairs as quickly as possible
Keep all your machinery properly lubricated.

By preserving your equipment you will be allowing more steel for national defense—saving money too.

Through the Nose

EVER WONDERED where that expression, "Paid through the nose," come from? Here is the best answer we have seen coming from the December issue of *Tax Outlook:*

"Federal excise tax collections derived from snuff 'of all descriptions' totaled more than $7,000,000 in fiscal 1950. Even more may be collected in fiscal 1951 if predictions of the Department of Agriculture are borne out. The Department expects about $1,000,000 more pounds of snuff to be used in this fiscal year than last for a total of about 42 million pounds."

That's what we call paying through the nose.

Victory Indeed

FLORIDA fruit and vegetable shippers have won a real battle in holding down rail rates.

Back in May 1950 the Railway Express Agency proposed to increase rates which shippers said amounted to 40 to 120 per cent and also to increase the minimum charge of $.75 to $1.25 to $1.50, depending on destination.

Just a few days ago the Growers and Shippers League and the Florida Express Fruit Shippers Association got word that the Interstate Commerce Commission had allowed the Express Company a commodity rate increase of 10 per cent and an increase in the minimum charge from $ .75 to $ .85.

That decision spelled victory indeed for those growers and shippers who depend on express facilities to get their product to the consumer. While the rates were increased, the amount should not disturb the express shipper's economy.

Scrambled Eggs

AFTER YEARS of supporting egg prices, the government decided to remove all supports effective Jan. 1, 1951. This leaves Uncle Sam with $100,000,000 worth of dried eggs which the government stands to lose 85 per cent on.

Egg and poultry prices in Florida have already felt the effect of this decision. The most undesirable result of support prices is the inevitable inequities that result when the government shoulders a false economy. For the minute a support is dropped some business immediately starts getting the pinch. So the Florida poultry business must now buy supplies from supported industries and sell in the competitive market.

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STANDARD TRACTOR FUEL... An outstanding, power-packed, clean-burning tractor fuel, made to give *more-work-hours per gallon* in distillate burning tractors. A real money and time saver.

STANDARD DIESEL FUEL... Specially designed for diesel-powered tractors or stationary engines. Its high ignition quality assures *complete combustion*... Whichever type of tractor you drive—gasoline, distillate or diesel—your Standard Oil route salesman can supply you with a fuel you can depend on to add *more power* to your farming.

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HERE's important news about METACIDE, the *new, powerful, safer-to-use* organic phosphate insecticide recently introduced to American Agriculture.

Extensive field research has demonstrated that METACIDE controls an exceptionally *wide range* of insects. This broad coverage makes METACIDE one of the most *versatile* and *useful* insecticides in existence, especially when you consider these additional important advantages: **1** Strength equal to Parathion, but less toxic to mammals. **2** Easy-to-use liquid concentrate forms collodial suspension in water . . . no powder to handle. **3** Easy to use in high or low pressure equipment.

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